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EDITORIAL : VAN DIE REDAKSIE

A UNIVERSITY NUMBER

This issue represents a departure from the customary form of the *Journal* in that its subject matter deals almost entirely with the medical faculties of the South African universities. As a 'University number' it corresponds—to a certain degree—with the annual 'educational number' of overseas medical journals. It follows a suggestion made some months ago in the correspondence columns that a number of this kind should be issued by the *Journal*. The object is to keep the profession in touch with the medical faculties, and in particular with contemporary trends in postgraduate teaching in this country.

For this issue articles have been contributed by members of the professorial staff of the medical schools, and the opportunity has been taken to include important pronouncements recently made by the Principal of Cape Town University and the Rector of Stellenbosch University. The Director of the South African Institute for Medical Research also contributes an article on postgraduate studies. A description of the new Durban Medical School will be read with much interest. It is contributed by the Dean, Dr. G. W. Gale, whose departure is greatly regretted. Dr. Gale has had a distinguished career in South Africa, and now leaves us to take up the chair of Preventive Medicine in the University College of East Africa at Kampala, Uganda.

Remarkable developments of medical education have taken place in South Africa during the past 40 years. Before that time all medical practitioners in the country, whether born in South Africa or not, received their training and qualifications abroad (chiefly but not exclusively in Great Britain and Ireland), there being no South African schools of medicine. The Universities at Cape Town and Johannesburg were the first to institute medical faculties in cooperation with the local hospital authorities, to be followed in later years by Pretoria and Durban; and the Stellenbosch University is about to establish the fifth medical school in the Union. There are now ample facilities in the Union for the medical education and training of White South Africans, in both the English and Afrikaans languages, and one medical school primarily serving the other ethnic groups of the South African peoples. At the end of last year 67% of the medical practitioners registered in the Union had qualified at South African universities, and year by year the proportion is increasing. Thus South Africa has fallen into line with other great countries in providing within its own borders for the undergraduate training of its medical profession.

Undergraduate teaching is by no means the sole function of a medical school, any more than it is the sole function of other university faculties. Though medicine is international, every country aims at contributing to the universal store of knowledge and not remaining in the less honourable position of a mere recipient or beneficiary. South Africa has already made good progress in that direction, and for this the medical schools and certain other centres of medical research are responsible.

It is these developments that have furnished the academic facilities for postgraduate study (to use this word in its widest sense), and as the medical schools have developed as centres of research so they have found it possible to develop their postgraduate teaching. To an increasing extent South African graduates who desire to take higher degrees or diplomas, or qualify for specialist practice, can find in their own country the facilities they need. Refresher courses for practitioners are also provided by the medical schools; there is ample evidence of the value of these and the appreciation in which they are held. Postgraduate work is a strong link between the University and the practising profession. It is a form of cooperation that stimulates medical progress both in the university and in practice.

STUDENT HEALTH SERVICES

The idea that a university should accept responsibility for the health of its students, and perhaps its staff, is rapidly gaining ground all over the world. Where it has been acted on, the service provided varies greatly in scope and nature. Its different facets—preventive health, curative services and general usefulness—are discussed in Dr. H. T. Phillips' article on page 443 of this issue.

The concept of a practice at the university is likely to have a highly selective appeal amongst medical men. Special qualities are essential for success. The full-time university health officer must needs be an enthusiast in public health and social medicine as well as a good clinician. At best he will be a man well-equipped in these respects, acceptable in an academic atmosphere and interested in the preservation of health as much as in the cure of disease; at worst a practitioner who wants an easy job. The scheme might thus stand or fall upon his selection.

What should the objects of a students' health service be? Preventive only, safeguarding the student body against disease and perhaps 'promoting'—to use the social medicine word—the health of the individual student? Or should it be comprehensive like the Minnesota scheme, including everything possible in the medical field?

The recent trend in Britain has been towards the less comprehensive scheme, focussed for the most part on the preventive and health-promotive aspect. This has been the approach in South Africa, where both the Cape Town and Witwatersrand Universities have stressed the need for an annual medical examination. Neither university has ventured to introduce compulsion, which is becoming the policy abroad, where it is argued that if the scheme is to be successful then *all* students must submit to examination—a demand no greater than that made upon entrants to the public service or the military forces. And since the universities take a financial risk upon the good health of each of the students in their schemes they are surely entitled to enforce this demand. The declining attendance figures of the Cape Town University medical service over the first 3 years make one wonder whether compulsion is not the only sure means of saving these schemes from collapse. Without compulsion they may easily fail to fulfil the fair promise they seem to carry.

Dr. Phillips sets out the manifest advantages of a properly-functioning students' health service. From the point of view of its medical officers, the possible monotony of examining healthy adults would be more than countered by its association with clinical practice, public-health advising, and the prospect of conducting

GESONDHEIDSDIENSTE VIR STUDENTE

Die mening dat 'n universiteit vir die gesondheid van sy studente, en miskien ook vir dié van sy personeel, verantwoordelikheid behoort te aanvaar, vat pos oor die hele wêreld. Waar sulke dienste alreeds verskaf word verskil hul heelwat in omvang en aard. Die verskillende aspekte—voorbehoedende geneeskunde, helende dienste en algemene nuttigheid—word volledig deur dr. H. T. Phillips bespreek in die artikel wat op bladsy 443 van hierdie uitgawe verskyn.

Die idee van 'n universiteitspraktyk sal waarskynlik by sommige geneeshere groot byval vind. Sukses sal van spesiale hoedanighede afhang. Noodwendig moet die voltydse universiteits-gesondheidsbeampte 'n lewendige belangstelling in openbare gesondheid en maatskaplike geneeskunde stel en hy moet ook 'n goeie klinikus wees: wat dit betref sal die beste beampte goed toegerus wees, hy sal ook in akademiese kringe tuishoort en net soveel belang in die behoud van gesondheid as in die genesing van siekte stel; die swakste beampte sal die geneesheer wees wat 'n maklike baantjie soek. Waarskynlik sal die sukses of andersins van die skema afhang van die mediese beampte wat aangestel word.

Wat behoort so 'n gesondheidsdiens te beoog? Slegs voorbehoeding deur die studente-gemeenskap teen siekte te beskerm en miskien ook die bevordering van die individuele student se gesondheid? Of behoort dit 'n uitgebreide skema te wees soos dié van Minnesota wat alles moontlik op mediese gebied dek?

Die rigting wat onlangs in Brittanje ingeslaan is, is om die minder omvattende skema toe te pas wat hoofsaaklik op voorbehoeding en gesondheidsbevordering toegespits is. Suid-Afrika benader die probleem op dieselfde wyse—beide die Universiteit van Kaapstad en die Universiteit van Witwatersrand het die noodsaaklikheid van 'n jaarlikse mediese ondersoek beklemtoon. Geeneen van hierdie universiteite het dit egter gewaag om dit verpligtend te maak nie, 'n beleid wat oorsee veld wen in ooreenstemming met die opvatting dat vir die skema om te slaag studente hul aan ondersoek moet onderwerp—'n vereiste wat geensins groter is nie as dié wat gestel word aan persone wat by die staatsdiens of die militêre magte aansluit. Aangesien die goeie gesondheid van elke student vir die universiteite finansiële implikasies inhou, is hul sekerlik geregtig om hierdie vereiste verpligtend te maak. Die dalende bywoningsyfer van die Universiteit Kaapstad vir die eerste 3 jaar verskerp die gedagte dat verpligtende ondersoek miskien die enigste metode is om hierdie skemas van ondergang te red. Sonder hierdie verpligting kan die skemas wat so veelbelowend voorgekom het miskien maklik misluk.

Dr. Phillips sit die klaarblyklike voordele uiteen van 'n gesondheidsdiens vir studente wat behoorlik funksioneer. Wat die mediese beamptes betref sal die moontlike eentonigheid om gesonde volwassenes te ondersoek meer as vergoed word deur 'n afgebakende kliniese praktyk, die beperkte raadgewing i.v.m. openbare gesondheid en die kans om belangrike navorsing te doen oor belangrike onderwerpe waaroor deesdae te

research into important matters which are at present too often only vaguely talked about—physical and mental fitness, the science of athletic perfection (which Roger Bannister has brought to the notice of medical men), and the true meaning of positive health.

dikwels net vaag oor gepraat word—liggaamlike en geestelike gesondheid, die wetenskap van atletiese perfeksie (wat deur Roger Bannister onder die aandag van geneeskundiges gebring is) en die ware betekenis van positiewe gesondheid.

THE AMERICAN 1954 FIELD TRIAL OF POLIOMYELITIS VACCINE

After this special issue was compiled the Summary Report on the Evaluation of the 1954 Field Trial of Poliomyelitis Vaccine (a document of 63 + xiv 2-column pages) was received, by courtesy of Dr. Thomas Francis, Jr., Director of the Evaluation Centre, University of Michigan, together with an Abstract of the Summary Report prepared by Dr. Robert F. Korns, Deputy Director. This issue has therefore been extended, and some items held over, in order to publish without delay the Abstract and certain relevant statistical tables from the Summary Report (see page 447).

THE EDUCATION VERSUS THE TRAINING OF THE DOCTOR IN THIS INDUSTRIAL AGE

AS SEEN IN GREAT BRITAIN, AMERICA AND SOUTH AFRICA*

T. B. DAVIE, B.A., M.D., LL.D., F.R.C.P., F.R.S. S.Af.

Principal and Vice-Chancellor, University of Cape Town

Dr. Davie said he proposed to discuss the merits of the current methods of medical teaching in the Universities, and to consider what modifications, or possibly only change of stress in certain directions, were desirable. He would refer to the position in Great Britain, America and South Africa as they appeared to him.

HISTORICAL

The first production of doctors was in the age of the supernatural; today the mystical element was still prominent in primitive peoples and even in some sides of recognized medical practice. This was followed by the naturalistic age, when medicine (or, rather, therapeutics, which was then its chief element) was based on the natural properties of medicinal substances, and the principles of physiology were still mainly unknown. At a later stage professional training took the form of apprenticeship, associated with preliminary 'dissections', etc. This gradually changed to the medical-school system. Medical schools at first were not all associated with universities. Not long ago many of the greatest of them were not. Today all medical schools were faculties of universities.

The problem now before them included the question whether the University was the best place for the training of a doctor. In most medical schools the student found himself isolated from the rest of the university psychologically and socially—often physically owing to the distance between the different buildings of the one university. Thus the medical student often failed to get the full benefit of his membership of a university and, on the other hand restrictions within the university not infrequently induced him to demand separation of the medical school from the university.

Dr. Davie spoke of the early basis of these developments. He said that in the earliest days medicine was purely therapeutic; primitive man did not go to his doctor for diagnosis, but for treatment. The study of diagnosis took its origin in the Italian schools, where dissection of the body on any scale first began, leading to some real knowledge on which treatment could be based. Thus anatomy and therapeutics (or pharmacology) were the original basis of medicine. These subjects had in some schools become worn out and dead but recently they had been re-vivified and in some of the medical schools, especially in Great Britain, Anatomy and Pharmacology were today amongst the most active departments. Modern medicine is based essentially on physiology—which arose primarily out of the work of the physicians of the 18th and 19th centuries. The physiological attitude lead to a change of outlook in pathology, away from morbid anatomy to causation of disease. From this change many advances in surgery as well as medicine took their origin.

THE PROBLEM

Education v. Training. These two conceptions were not always easily separated; yet the distinction was not entirely academic. Dr. Davie said he would speak from the University point of view, which tended to give a higher value to education than to training. This view might not be held by everyone.

Training meant equipping with techniques, both manual and mental; with manipulative skills in diagnosis, in surgery, in obstetrics, etc., *plus* certain knowledge and the use of 'log books' of diagnosis and treatment (Dr. Davie said that here he was over-simpli-

* Report of an address delivered at a meeting of the Cape Western Branch of the Medical Association of South Africa at the Medical School, Observatory, Cape, on 25 February 1955.

fying and exaggerating). That these skills were necessary no one would doubt, but the concept of the University was that it gave something more. It tried to develop (not create) the powers of reasoning, of criticism and unbiassed judgment, of initiative; that is to say, its aim was the culture of the individual. The student should have the opportunity of developing these qualities. In the light of these considerations they had to evaluate their methods in the medical schools. Both training and education were essential in medicine as in other professions. There were no universities where training was omitted, but there were a number of institutions where education was neglected because of the undue stress placed on training.

Effect of the Industrial Age. The use of this term (or Scientific Age, Technological Age, etc.) usually implied that there was something wrong with it. But it would be easier to enumerate the advantages of the age to medicine than its disadvantages. Why! said the speaker, during the last 25-50 years they had lived through the most breath-taking period in the history of medicine. Let them consider the advances in synthetic drugs, antibiotics, transfusion values, nutritional science, etc. These had come from the concentration on science and often from industry direct; so had enormous advances in the standard and variability of instruments, in mechanical aids to teaching, and in other directions.

What was there to the bad that came from the Industrial Age? It was something not easily measured—the 'materialistic outlook'. In research and teaching public pressure was for immediate utility. Immediate and direct usefulness was the sole criterion of value, and often money values predominated. It tended to stress the value of training in technique, mental and physical, and to deprecate the spending of time on other objects. This atmosphere promoted a sense of hurry and rush and militated against the leisurely study in which doctors had grown up in the past. It was perhaps symptomatic of this today that the stress in matriculation was on mathematics and not Latin for the medical student. The doctor used to be a cultural leader in the community, with the parson and the teacher; more and more he was losing this status. Those who knew something of the past from experience or reading felt that today there was a seeking of materialistic ends and a lack of spiritual and intellectual background. These seemed to be fruits of the present age; that the 'education' of the doctor was being replaced by mere 'training'.

THE REMEDY

Dr. Davie asked them to assume that the evil or the danger did exist. How were they to meet it? He made 4 points in particular:

(1) Medicine was an intellectual discipline in its own right, and in itself was cultural and intellectual. It did not need other studies to make it so (that did not mean that improvements could not be made). The study of medicine was as useful as that of philosophy or Greek, for instance, in making an educated man. (*a*) The 'basic sciences' were a sound foundation, and if the medical man failed to continue the studies to which they were an introduction he would fail in his future development. Anatomy and physiology were for the doctor a continuous study throughout life. (*b*) The doctor's contact with patients involved a knowledge of psychology and sociology. Experts from outside might usefully be called in, but we mainly drew on the experience of our own profession in these fields. (*c*) Finally in our clinical work we derived the cultural and spiritual value of human contacts to an extent which applied in no other profession, short of the Church itself.

(2) Materialistic tendencies were unconsciously countered by the enthusiasm and idealism not only of the students but also of those who controlled their training. In this the full-time staff were of especial value because they were not subject to certain counter-interests, and by their full-time devotion to scientific and clinical service they provided powerful resistance to the materialistic attitude.

(3) The idealism and enthusiasm of university staffs kept alive 'fundamental research'. Materialism born of this rushing age demanded that research should be directed to a practical aim. All over the world there were Councils and Departments of Industrial Research, which were the children of the Industrial Age—they were essential for Industry and the State, but their aims were commonly entirely different from what we thought of as 'fundamental research'. Any institution which was fostering fundamental research was countering the pressure of this material age.

(4) There was an awareness on the part of students and staff that man 'does not live by bread alone'; no one seemed more aware of it than the students. It might almost be said that the students looked after their education while the university attended to their training. The speaker referred to the students' initiative in establishing art courses, dramatic clubs, discussions, social gatherings, social service, etc. and said that these were direct and conscious efforts towards the development of the cultural and intellectual life of the young medical student.

GREAT BRITAIN AND AMERICA

Dr. Davie then passed on to influences in Britain and America that were operating against materialistic tendencies.

In Great Britain certain aspects of the 'welfare state' and the full-time health service, with their concept of community service rather than self service, told in favour of ideals rather than material gain. On the other hand these same trends tended to remove certain incentives to individual expression, and the frustrating effect of bureaucracy sometimes led to a degree of apathy. The 4 influences he had just cited as operating in South Africa applied also in Great Britain.

In the United States of America, where the influence of the industrial age was more developed than elsewhere, certain active measures were being taken by many of the universities to counteract its influence.

1. The young man or woman who wants to be a doctor must, on leaving school, spend 4 years at a 'college of liberal arts' (or 3 years at some) and take his A.B. degree. Only then may he proceed to the graduate

school, where he spends 3 years over his medical course, after which he becoms an intern. The colleges (there are hundreds of them) go no further than the A.B. degree, and have no faculties of medicine, engineering, etc. Every university is a college surrounded by graduate schools of faculties such as medicine, law, engineering, architecture, fine arts, education and commerce. In college the students who are preparing for medicine take the 'basic sciences' (Chemistry, Physics, Zoology and Botany) in their first year, but then they 'major' in classics or a science or any other A.B. subject they choose. In the graduate school they start with Anatomy and Physiology. They spend less time there on the clinical subjects than the South African universities require, but they carry on their studies into the intern year. When Cape Town University was giving its 'B.A. med.' it was doing something similar.

2. To obviate the isolation of the medical school from the rest of the university in the manner with which we are familiar in South Africa, the teaching hospital of the University of Chicago opens on to the University campus itself, near the buildings for theology, botany, etc. A similar policy is pursued at the other university in Chicago, viz. the North Western University, where Medicine, Commerce and Law are all on the same campus (in the City). (Dr. Davie remarked that the Chicago Hospital was staffed entirely by salaried staff, and the N.W. Hospital entirely by honorary staff. Both were first-class places.)

3. At Rochester, Duke and certain other universities the medical student is required to attend a course in one non-medical subject in each of his 3 years in the graduate school.

4. At Johns Hopkins the student must spend one half-day a week (*a*) attached to a research worker by mutual arrangement, or (*b*) attending an elective course in a medical subject not included in the formal curriculum (a number of such courses are available), or (*c*) in a non-medical subject (such as philosophy, economics, etc., etc.). All this is additional to the obligatory items in the medical course. Yale and Duke have similar requirements.

5. Yale University does not require its medical students to sit for any examinations. It concentrates on a high standard of staff and the staff's relations with the students.

CONCLUSION

Dr. Davie ended with a consideration of what practical steps might be taken in the South African medical schools, more particularly at the University of Cape Town. He concluded that at present there was no undue stress on 'training' (technique) and that if the present balance were preserved they were not likely to suffer prejudice in that respect. In future it would be necessary to take care to avoid being so engrossed in technique as to lose the cultural side of medical education; yet they must also beware of leaving too much of the necessary training to the intern year—it would not do to devote all their time and attention to 'education' (e.g. principles, theory and philosophy).

He suggested that consideration should be given to the following proposals:

1. More stress should be given to what he had called 'fundamental' research!
2. The possibility should be explored of introducing the Johns Hopkins idea of attendance on elective courses outside of and additional to the formal curriculum.
3. Idealism should be encouraged by the inspiration and example of the staff.
4. Students should be assisted to assist themselves in their cultural and idealistic activities, but without detracting from their initiative. An excellent medium was lunch-hour addresses, in which the medical staffs could play a bigger part than was the case at present.

DIE GENEESKUNDIGE FAKULTEIT AAN DIE UNIVERSITEIT VAN STELLENBOSCH

DEEL VAN DIE REDE GELEWER BY GELEENTHEID VAN DIE FORMELE OPENING VAN DIE UNIVERSITEIT OP 2 MAART 1955

Deur PROFESSOR DR. H. B. THOM

Rektor van die Universiteit van Stellenbosch

Nadat dr. Thom na ander ontwikkelinge aan die Universiteit verwys het, het hy hom as volg uitgelaat:

Hier wil ek handel oor die Geneeskundige Fakulteit, wat, na ons stellig verwag, binne korte tyd aan die Universiteit van Stellenbosch sal bestaan. Dit is 'n ander nuwe rigting, waarvoor die Universiteit hom inderdaad reeds verskeie jare lank beywer en waarvoor daar versigtige, weloorwoë voorbereidingswerk gedoen is. Hierdie voorbereidingswerk van die Universiteit moes noodsaaklikerwyse—soos dadelik begryp sal word—gekoördineer word met aktiwiteite, waaroor die Universiteit geen beheer het nie, soos die beskikbaarstelling van die nodige hospitaalfasiliteite (wat onder beheer van die Kaaplandse Provinsiale owerheid val), en die owerheidsbeleid in verband met die subsidiëring van Universiteite (wat 'n funksie van die Unieregering is).

Laat ons kyk hoe dit tans met hierdie saak staan, en

laat ons, ten einde die juiste perspektief te kry, ook so 'n bietjie in die verlede terug gryp.

WENSLIKHEID VAN AFRIKAANSE OPLEIDING

Gepaardgaande met die nasionale bewuswording van Afrikaners en hulle vooruitgang op die verskillende terreine van die lewe, het by hulle ook die behoefte om hulle seuns en dogters in alle vertakkinge van die hoër onderwys deur middel van hulle eie taal te laat onderrig, steeds sterker geword. Die Universiteit van Stellenbosch, die eerste en oudste Afrikaanse universitêre inrigting, het hom reeds vroeg daarop toegelê om soveel moontlik in hierdie behoefte te voorsien. Ons verwys hier maar net na een baie belangrike stap in hierdie rigting, t.w. die stigting van 'n Fakulteit van Ingenieurswese, wat in die moeilike oorlogsjare in die lewe geroep is en, ten spyte van die groot struikelblokke waarmee ons te kampe gehad het, uitgebrei het en uitgegroei het om een van die beste Ingenieursfakulteite in ons land te word.

Dit is maar net natuurlik dat die Afrikanervolk, net soos enige ander volk wat selfrespek en idealisme het, sal probeer om in alle vertakkinge van die lewe, en dus ook in die onderwys, die hoogste sport te bereik. Maar daarby kom nog die praktiese voordele wat die jong student geniet wanneer in die hoër onderwys voortgegaan word met dieselfde taalmedium as wat in die skole gebruik is: die taak van die jong student, wat reeds met nuwe en moeilike wetenskaplike vraagstukke te kampe kry, word dan nie nog meer bemoeilik deurdat hy nou ook met taalmoeilikhede moet worstel nie. Dat ons eie Universiteit, die Universiteit wat só naby ons volk staan dat hy in werklikheid met die volk self ineengewewe is, al baie vroeg in hierdie behoefte probeer voorsien het, is seker nie moeilik om te verstaan nie.

Wat die opleiding van geneeshere betref, voel die Universiteit van Stellenbosch reeds lankal dat hy, in die lig van sy verlede en van sy taak as erkende Afrikaanse inrigting, 'n plig het om te vervul. Laat ek dit dadelik duidelik stel dat dit nie ons strewe is om noodwendig meer geneeshere te help oplei as wat tans opgelei word nie. As ons land met verloop van tyd meer geneeshere nodig het, sal ons wel graag ons bydrae daartoe wil lewer, maar ons het in werklikheid twee ander groot oogmerke.

Die eerste vloei voort uit wat reeds gesê is. Ons wil hier in die suide van ons land geneeshere deur medium van Afrikaans oplei, en ons wil hulle oplei in 'n omgewing en atmosfeer wat deur en deur Afrikaans is. Weliswaar is in hierdie behoefte reeds tot 'n beperkte mate deur die Mediese Fakulteit in Pretoria voorsien, maar daar is 'n groot aantal Afrikaners wat in Kaapland, en veral die Boland, woonagtig is, wat dit nie so maklik vind om hulle kinders na Pretoria te stuur nie en wat 'n Geneeskundige Fakulteit in die Boland van harte sal verwelkom.

Maar selfs nog afgesien hiervan, moet dit vir enige onbevooroordeelde beoordelaar duidelik wees dat wat geneeskundige opleiding betref, die Afrikaner vandag nog glad nie oor die fasiliteite beskik waarop hy met reg aanspraak kan maak nie. Daar is in ons land tans *een* Geneeskundige Fakulteit vir nie-blankes, maar dit laat ons voorlopig daar. Dan is daar *twee* fakulteite aan Engelse Universiteite met taalmedium Engels, teenoor *een* fakulteit met taalmedium Afrikaans, en dit ten spyte van die feit dat sestig persent van die blanke bevolking van Suid-Afrika uit Afrikaners bestaan. Dit is in hierdie toestand van ongelykheid van fasiliteite dat die Universiteit van Stellenbosch wil help om 'n verbetering teweeg te bring.

Dan is daar ons ander groot oogmerk. Die sentimentele of kulturele behoefte weeg ongetwyfeld swaar, maar by die stigting van 'n nuwe fakulteit moet 'n Universiteit hom ook afvra of hy van sy kant 'n werklike bydrae tot die verspreiding van wetenskaplike kennis en tot wetenskaplike ondersoek sal kan lewer.

Nou spreek dit byna vanself dat 'n Universiteit soos dié van Stellenbosch, waar die universitêre tradisie en wetenskaplike studie en navorsing so sterk gevestig is, heel beslis 'n bydrae op mediese gebied te lewer sal hê so gou hy oor die nodige fasiliteite en materiaal beskik.

DIE GROOTTE VAN DIE FAKULTEIT

Maar in ons uitvoerige ondersoek na hierdie kwessie het ons gevind dat ons bowendien, om 'n besondere rede, 'n heel spesifieke taak te vervul sal hê. Dit het nl. geblyk dat aan die bestaande fakulteite die getalle studente baie groot is, selfs groter as wat aan die meeste bekende Amerikaanse Mediese Fakulteite die geval is, en heelwat groter as wat in Amerika as die gewenste getal vir 'n Mediese Fakulteit beskou word.

Wat Stellenbosch betref, wil ons uitdruklik sê dat ons geensins na groot getalle sal strewe nie. Ons sal eerder 'n betreklike klein getal studente verkies, sodat studente meer indiwiduele aandag in hulle opleiding kan ontvang. Met 'n kleiner getal studente sal navorsingswerk, deur dosente en senior studente, ook veel meer tot sy reg kan kom. Ons glo stellig dat die Stellenbosse Fakulteit van die begin af sterk in die teken van navorsingswerk sal moet staan, want aan geneeskundige navorsing het ons land vandag 'n baie dringende behoefte.

Om op te som: ons wil dus nie noodwendig help om meer medici op te lei nie, maar ons wil veral daarna strewe om meer geleentheid vir die opleiding deur medium van Afrikaans te skep, en om in die studie en opleiding tot 'n groot mate vir indiwiduele aandag en navorsing voorsiening te maak.

GEEN WEDYWERING

Terwyl ons Universiteit dan nou op die punt staan om tot hierdie nuwe terrein toe te tree, wil ons baie openhartig sê dat ons dit nie in 'n gees van kritiek teenoor ander, of van wedywering met inrigtings van dieselfde soort, sal doen nie. Inteendeel, dit geskied in 'n gees van samewerking en met die oortuiging dat ons Universiteit wel 'n bydrae—hoe beskeie dit aan die begin ook al mag wees—te maak het tot die uitbreiding en verspreiding van kennis van die mediese wetenskap en tot die studie en oplossing van mediese vraagstukke in Suid-Afrika. Daarom sal ons ook van harte daarna strewe om op 'n gesonde grondslag saam te werk met ander mediese skole sowel in ons land as buite ons grense.

Soos miskien nie onverwags was nie, het daar 'n mate van kritiek op ons voornemens en planne ontstaan. Hierdie kritiek het veral betrekking gehad op die feit

dat die Fakulteit, wat sy hospitaalfasiliteite betref, in die Kaapse Skiereiland beplan word. Daar is aangevoer dat die Skiereiland nie oor genoegsaam kliniese materiaal vir twee mediese skole sou beskik nie. Hierop het ons geantwoord deur die versekering te gee dat ons niks van die fasiliteite van die bestaande mediese skool sal wegneem nie, en dat die ontstaan van ons fakulteit volkome afhanklik gemaak word van die verskaffing van nuwe, of addisionele, fasiliteite. Ons het bowendien daarop gewys dat die Kaapse Skiereiland met sy bevolking van 600,000, wat ook nog steeds vermeerder, sonder enige twyfel voldoende kliniese materiaal vir twee mediese skole oplewer, en dat daar selfs 'n groot aantal mediese skole is, trouens selfs van die allerbestes, wat hulle kliniese materiaal uit veel kleiner bevolkingsbronne trek as dié wat vir elkeen van ons skole beskikbaar sal wees.

Teen ons antwoorde val daar niks in te bring nie, en daarom is dit nie vreemd dat hierdie kritiek vandag nie meer gehoor word nie. Wat meer is, ons kritici erken vandag dat die beskikbare bevolkingsbron groot genoeg vir twee mediese skole is; en hulle aanvaar ook dat die Stellenbosse Fakulteit op die punt staan om werklikheid te word.

Hoe dit sy, ons is ons volkome bewus van die probleme wat daar op ons weg lê. Maar ons is ons ewe bewus van die groot moontlikhede waarvoor ons staan, en ook ewe bewus van die noodsaaklikheid dat ons as Afrikaanse inrigting ons plig doen om die nodige fasiliteite vir opleiding in die medium van ons moedertaal te verskaf. Aan die buitewêreld het ons reeds gesê, en hiermee wil ons dit nou by herhaling sê, dat ons geensins van voorneme is om ons plig te ontduik en dit op die skouers van ander te plaas nie, maar dat ons vasbeslote is om dit self te doen.

Vyf jaar het verloop sedert ons die saak aangepak het. Dit was vyf jaar van planmatige, intensiewe voorbereidingswerk. Ons is egter tans gelukkig in staat om deurslaggewende vooruitgang te rapporteer. Met die insameling van fondse het dit goed gegaan. Ons beskik wel nog glad nie oor al die fondse wat ons nodig het nie, maar private indiwidue, en sake- en ander liggame oor die hele land het mooi bygedra, en ek vertrou stellig dat die verslag wat ek vandag hiermee lewer, daartoe sal bydra om nog verdere fondse te laat binnekom.

HOSPITAALFASILITEITE

Ook met die organisatoriese voorbereiding van die Fakulteit self is daar gewigtige en besliste vooruitgang gemaak. Die Provinsiale Administrasie van Kaapland het ons verlof verleen om die nuwe hospitaal by Bellville vir opleidingsdoeleindes te gebruik, en die Administrasie werk hartlik met ons saam om die nodige fasiliteite daar te verskaf. Na onderhandelings tussen die Provinsiale Administrasie en die Universiteit het die Administrasie ook besluit om die groot nuwe hospitaal, waaraan daar in die Skiereiland reeds lank 'n dringende behoefte bestaan en wat naby die Parow-stasie gebou sal word, aan die Universiteit as 'n opleidingshospitaal beskikbaar te stel. 'n Groot, geskikte perseel vir hierdie hospitaal is ook reeds gevind, en met die werk van beplanning van die hospitaal en bygaande geboue is reeds 'n begin gemaak. Dit kan dan beteken dat die Universiteit die Bellville-hospitaal slegs tydelik sal gebruik, om dan later na die groot opleidingshospitaal by Parow oor te skuif.

Die hospitaal by Bellville sal in die loop van volgende jaar voltooi, en van personeel voorsien wees. As ons dan nog 'n jaar toelaat sodat alles in volle, normale werking gebring kan word, en die nodige fasiliteite vir mediese opleiding voorsien kan word, dan beteken dit dat alles teen die einde van 1957 gereed kan wees. Studente in die geneeskunde sou dus van die begin van 1958 af in hierdie hospitaal kliniese werk kan doen. Aangesien hierdie kliniese werk in die derde jaar van die mediese kursus nodig is, beteken dit dus dat die Universiteit van Stellenbosch, volgende jaar, 1956, met sy geneeskundige opleiding sou kon begin.

Ons planne is dan ook hierop gemik. Die Universiteit is tans besig om vertoë tot die Regering te rig, en as die Regering ons planne goedkeur, en die nodige finansiële en ander reëlings wat nog oorbly, getref kan word, is dit ons voorneme om ons eerste mediese studente aan die begin van volgende jaar in te skryf. Daar sal vanselfsprekend nog veel gedoen moet word, vóór en nadat ons 'n begin gemaak het, om ons organisasie in die haak te kry. Die nodige geboue sal bv. opgerig moet word soos hulle benodig sal wees, en leerkragte en tegniese assistente sal verkry moet word. Ons maak ons geen illusies omtrent die omvang en aard van hierdie probleme nie, maar ons is vol vertroue—en, na ons meen, geregverdigde vertroue—dat hierdie probleme met verloop van tyd almal opgelos sal kan word.

Inmiddels rig ek 'n uitnodiging aan almal wat ons op die een of ander wyse behulpsaam kan wees, om aan ons nie hulle bystand te weerhou nie. Dit geld o.a., en inderdaad in hoë mate, vir tegnies-opgeleide persone, wat die een of ander besondere belangstelling het en met sekere aspekte van geneeskundige opleiding sou kon help. Die Universiteit is reeds besig om verkenningswerk met betrekking tot benoemings in die verskillende poste te doen, en hoe gouer en hoe meer ons lig op die moontlikhede hiervan kry, hoe makliker sal dit met die ewentuele vulling van die poste gaan.

SLOT

Ek moet afsluit. Laat my toe om by wyse van slot net dit te sê: Die Universiteit van Stellenbosch het van die begin van sy bestaan af tot vandag toe die wetenskap gedien, en deur sy diens aan die wetenskap het hy die gemeenskap gedien. Hy het dit gedoen deur middel van die ou studierigtinge wat reeds lank al aan die Universiteit bestaan, en hy het dit ook gedoen deur middel van die nuwe ontwikkelinge waarvan ek vandag hier melding gemaak het. Deur ander ontwikkelinge en deur die stigting van 'n geneeskundige fakulteit sal ons Universiteit nog veel meer in die diens van ons land en ons volk geplaas word as wat tot nou toe die geval was. Laat ons almal op hartlike wyse ons samewerking gee: ons eerstejaar-studente, ons senior studente, ons dosente, laat ons almal ons bydraes lewer. As ons dit doen, kan ons seker wees dat die publiek nog steeds waardering

teenoor ons Universiteit sal bewys, en, wat meer is, dat ons ook steeds die plek in die harte van ons mense sal behou wat ons deur jare van diens verower het.

[*Die Minister van Onderwys, Kuns en Wetenskap, mnr. J. H. Viljoen, het enkele dae gelede die Regering se goedkeuring van die Universiteit se planne om in* 1956 *te begin, in die Volksraad aangekondig. Die kroon is dus geplaas op vyf jaar van harde werk om alle voorbereidsels te tref, en volgens 'n pers-onderhoud met dr. Thom* (Die Burger, 28 *Maart*) *het 'n hele aantal studente reeds aansoek gedoen om toelating tot die mediese kursus.*]

TRENDS IN MEDICAL EDUCATION IN SOUTH AFRICA

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Trends in medical education in South Africa are in some instances common to those in other parts of the world, but in other instances are peculiar to South Africa, being determined by local philosophy, culture and customs, local demands of practice, and local pre-university education.

The only constancy in the designing of medical curricula all over the world is a constant desire to change. Whilst the medical schools of one country contemplate reducing the total duration of their course from 8 to 6 years, and increasing the duration of the course in a particular subject from, say, 1 to 2 years, medical schools of equivalent merit in other countries are contemplating increasing their total course from 6 to 8 years, and reducing the course in the same particular subject from 2 years to 1 year. This means that no country is ever satisfied with its medical curricula, which is a healthy state of thought, but it also means that there is no such thing as a perfect curriculum. Change for the sake of change must be avoided; change for the sake of improvement is to be encouraged.

Every medical school has its curriculum committee, which meets at intervals with greater or less enthusiasm and effectiveness. Sir Robert Hutchison once prophesied with confidence that 'on the last great day when the earth shall quake and the rocks melt and the sun be turned to darkness and the moon to light, the multiple happenings that will be seen will certainly include the spectacle of a strong committee of a medical school seated around a table discussing learnedly and with much feeling the revision of the medical curriculum'.

The impossibility of planning the perfect curriculum is due to the many variables that have to be considered in its evolution. The mass of factual information and knowledge is increasing so rapidly from year to year and decade to decade that the selection of what is sound and essential to be offered the average student presents an almost insuperable difficulty. The innate qualities and educational standing of the medical student vary from year to year, from school to school, and from country to country. Teachers vary in their interests, in their views on teaching, and in their ability to teach. The careers for which students are to be trained cover a wide field. 'The medical profession', as George Eliot writes, 'allows one to have the exclusive scientific life that touches the distance, and to befriend the old fogies in the parish too'. Even though it is agreed that the emphasis of teaching must be on preparing the student for some form of general clinical practice, the best way in which to effect this purpose is by no means settled.

Objectives of Medical Education in South Africa

The over-all objective in South Africa, as in most other countries, is to prepare students for some form of general clinical practice, and for many years there seems little doubt that in South Africa this practice will, in the main, take the form of private practice. The number of full-time posts in clinical practice is comparatively small and, in the opinion of the author, is unlikely to increase appreciably in the next 20 years in South Africa. A feature peculiar to medical training in South Africa is the need to imbue students with that sense of responsibility and self-reliance which is particularly necessary in rural practice, where consultative and technical assistance is not readily available when needed. The needs of specialistic training need not be considered in arranging a medical curriculum, since specialism must in any case be built on a foundation of undergraduate training which is common to all forms of later clinical practice. Whether the prospective public-health medical officer or the medical administrator requires the same medical education as that which is given to the prospective clinical practitioner is disputed, but this dispute does not alter the main issue that the majority of students will be entering clinical practice, and the course must be such as will prepare for that form of practice. The requirements of general practice, as envisaged by the author, were elaborated in 'The Training of Students for General Practice', published in the *Journal*[1] on 5 February 1955, and will not be repeated here. Clinical training should include experience amongst the different racial groups of the population.

Selection of Medical Students

The quality of the medical student admitted to the medical course has a considerable bearing on the design of a curriculum, and therefore a discussion on selection of medical students must be included in any discussion on medical education. The background for medical education is set at school before the student enters medical school, and the curriculum must, to a certain extent, be adapted to the form of school education and culture which the majority of students receive.

It is agreed that students most suited to a medical training and career should, if possible, be selected to undertake the training. But just as there is no perfect medical curriculum, there is certainly no perfect method of selecting medical students. The most elaborate system of student selection in the world, such as that which has been evolved in the United States of America over the last 25 years, and which includes so-called 'aptitude' tests, claims no more than to select a group of students who will be likely to succeed in passing the examinations of the medical curriculum and completing the course.

The wide selection of careers open to medical graduates makes it very difficult indeed to generalize upon the qualities that should be looked for in a prospective graduate. It is generally agreed that it is required of an adequate medical student that before entry to medical school he must have achieved an academic standard which has been defined by the school and by the South African Medical and Dental Council, that he possess a modicum of intelligence, a stable personality, intellectual honesty, and good motivation in regard to the career of his (not his parents') choice. Academic achievement at school, intelligence, and emotional stability, can be objectively assessed with fair accuracy. On the other hand, intellectual honesty and motivation in respect of the many careers open to the medical graduate are personality traits that cannot yet be objectively assessed by tests. Only by observing the student on his way through his undergraduate, and for that matter his early postgraduate, career can a rough idea of these two qualities be obtained.

Even if all the required qualities could be readily assessed at the time the student enters the medical school, these qualities are possessed in adequate quantities by so many of those wishing to undertake a medical career that where there is a restricted entry to a school and the number of applicants is greater than the number being accepted, selection on the basis of these personality traits would not whittle down the numbers sufficiently. Even though the number of applicants does not exceed the number of vacancies, a school may still decide to restrict entry even to the students who satisfy the standard set by the school. There is, however, much to be said for 'letting nature take its course' and, where there is no restriction of entry, allowing all those applicants who wish to enter the medical faculty to do so, and subsequently to drop out according to their own wishes, or be dropped out according to their failure to achieve a satisfactory standard of work.

Much as the universities of South Africa may wish to effect improvements in their pre-university school education, it is public educational policy at present to refrain from attempting to adapt school education to suit the 6% of the school population who will proceed to university. Nor can universities insist upon the character of a pre-university compulsory post-matriculation year at school. It is for these reasons that in the last few years moves have been made to institute a 'basic training year' at South African universities, the detailed course for which has been elaborated by the University of the Witwatersrand. Instruction in communications, written and verbal, and in logic, were to be included. For economic reasons it has to date not been instituted.

THE MEDICAL COURSE

It is not intended to discuss in any detail the content of the medical curriculum. An added emphasis upon chemistry, physics and physiology appears to be universal, but there is a great difference of opinion regarding the actual measure of such increased emphasis in terms of hours and coverage of subject matter.

The subject content of the course, and the contents of the various subjects of the course, are important, but far more important than content is co-ordination between the different subjects throughout the course. A 2-year course in organic and inorganic chemistry before the student begins physiology may be far less educative and effective than a 1-year course in the same subjects properly co-ordinated with the requirements of physiology and medicine. A profound knowledge of organic chemistry will not make the student more *understanding* of the work later in the course, and in his subsequent career, unless it is co-ordinated with such later work. Factual knowledge of formulae does not help the student to *understand* the therapeutic or toxic action of a drug on the body, nor does it help the student to reason according to the principles of the scientific method, namely observation, inference and verification. A mass of facts without co-ordination is certainly not sound education.

The printed syllabus means little. The manner in which that syllabus is put into operation, particularly in co-ordinating the subjects of the course, is far more important.

Another factor affecting the content and operation of the curriculum is the quality of the teaching staff, their special interests, and their adequacy in number. The teaching staff, not the syllabus, determines the character and personality (good, bad, or indifferent) of a medical school. Experience is only educative if it occurs under proper guidance, and the quality of guidance depends upon the teaching staff. Teaching is an individual matter, each teacher having his own technique, which may be didactic, Socratic, or even silent, the last creating an atmosphere from which the students absorb instruction.

To illustrate the objectives of co-ordination and the difficulties met in achieving that co-ordination, I shall describe the system now in practice in the Department of Medicine at the University of the Witwatersrand. The system is dependent on warm interdepartmental co-operation. It is very far from perfect, and is described only by way of illustration. It certainly can be emulated, and may be either imitated or disapproved.

Medicine must be co-ordinated not only with the 'pre-clinical' subjects, particularly Physiology and its branches of biochemistry, histology and pharmacology, and Pathology, but also with its sister clinical subjects. The term 'pre-clinical' in relation to such subjects as anatomy, physiology, pharmacology and pathology, in the context of a discussion of a medical curriculum, is unfortunate, for these subjects, which start before

the clinical subjects, should be para-clinical as well, and continue into the clinical training years.

Physiology. Co-ordination of the work of the Department of Medicine with Physiology takes the form of a course in Clinical Physiology which starts after the student has passed the statutory examination in Physiology at the end of the second year. This course is arranged by a small committee of senior representatives from the Departments of Physiology, Surgery and Medicine. Owing to lack of staff and accommodation facilities, the course at present is weakest in the third year, when the students are studying Pathology and Pharmacology. In this year, the students meet once a week for 2 hours and are shown clinical cases, in the presentation and discussion of which major emphasis is placed upon the disorder of physiology that is illustrated. The meaning and measurement of venous pressure, for instance, is discussed over a case of congestive cardiac failure, and the mechanism of abdominal pain over a case of peptic ulcer.

In the 4th year the students attend the course for one session of 2 hours each week. Owing to shortage of staff and other facilities, it has not been possible to achieve the ultimate aim of having the students regularly do experimental physiological work on themselves in small groups. In discussing a subject such as pain, however, the students in small groups do simple experiments on each other, and staff, qualified to do so, anaesthetize a peripheral nerve on a number of volunteers and the students study and report on the effects; the effect of a non-habit-forming sedative on pain threshold is tested. The course includes instruction in the dynamics of the circulatory and the respiratory systems, the cardiac cycle, radioscopy, pain, nutrition, etc. Emphasis is placed upon the interpretation and mechanism of production of clinical symptoms and signs. However short of the ideal this course in the 4th year may be at present, every effort is made to imbue the students positively with the philosophy that physiology must never be forgotten in the practice of clinical medicine. The course is run on a seminar-discussion basis with demonstrations and experimentation, rather than on a lecture basis.

In the 6th year, a seminar-discussion series of meetings is held once a week in Medicine time, at which subjects suitable for clinical physiological discussion are chosen, for example, discussions of the eye in general medicine, of malnutrition, of jaundice, of purpura, or of headache. Here again, shortage of staff does not permit of as much interdepartmental co-operation as is desired by all departments concerned.

Pathology. Co-operation and co-ordination with the Department of Pathology takes the form of clinical pathological conferences arranged between the Departments of Medicine and Pathology. Members of both departments are always present. These conferences have now been abandoned in the 4th year, where they have given place to the course in Clinical Physiology, since the students are not then well enough equipped with a knowledge of clinical medicine to be able to obtain great advantage from clinical pathological conferences. They take place, however, throughout the 5th and 6th year. The students themselves present the cases and lead the discussions, under the guidance of the staff of the two departments.

Anatomy. Co-ordination of clinical subjects with the Department of Anatomy takes place mainly under the aegis of the Department of Surgery. Nevertheless, it is arranged as far as possible that aspects of anatomy relevant to the teaching of the Department of Medicine are discussed simultaneously with the same group of clinical-year students in the clinical anatomy course organized by the Department of Anatomy.

Physics and Chemistry are not taught by the Departments of Physics and Chemistry in the clinical years, but such physics and chemistry as is related to physiology, chemical pathology and medicine, is dealt with in the Clinical Physiology and Clinical Pathology courses. For instance, the physics of sound is used as a basis of the interpretation of auscultatory examination of the chest, and the physics of optics in the interpretation of disorders of the eye in medicine.

Co-ordination with the other clinical subjects is equally as important as co-ordination with the so-called 'pre-clinical subjects'.

Psychiatry is regarded as the most important clinical subject to be co-ordinated into Medicine, Surgery, and Obstetrics and Gynaecology. In the Department of Medicine, this co-ordination is achieved in the medical wards of the Johannesburg General Hospital by having 2 part-time psychiatrists attached to the staff of every firm. One of these acts mainly as a consultant to advise on psychiatric problems in the ward, and the other concentrates on the teaching of students and the psychotherapy of the medical ward cases. In the 5th and 6th years, students *in Medicine time* are instructed in psychiatric interview technique *in the medical wards*, and also at the psychiatric out-patient department of the General Hospital. In addition to this teaching by the psychiatric staff, joint teaching-rounds are held in the medical wards with the 6th-year medical students, in which a psychiatrist and a physician take part. Whatever may be the dominating aspect of a case, medical or psychiatric, the student is led to see the essential unity of the body and the mind *in all cases*.

The response of the students to this type of teaching has been very satisfactory, and they frequently comment that it has enabled them to see the unity of the mind and the body. The success of this co-ordination between Medicine and Psychiatry depends entirely on the personal co-operative effort of physicians and psychiatrists.

This teaching of psychiatry in the medical wards is complementary to the course organized by the Department of Psychiatry, the examination for which is written at the end of the 4th year of study.

Paediatrics is also co-ordinated with Medicine in that, in addition to the formal course of lectures in Paediatrics in the 5th year and a period of full-time attendance at the Children's Hospital in the 6th year, paediatrics demonstrations are arranged twice a week in the 6th year and once a week in the 5th year *during Medicine time*. Furthermore, a paediatrician examiner is included in the final examination in Medicine.

Dermatology is similarly co-ordinated. A course of lectures is held in the 5th year, but clinical instruction is given *in Medicine time* in the 6th year and to a rather less extent in the 5th year. The students are made to feel that Dermatology and Medicine are a unity.

Social Medicine. One assumes perhaps too readily that all modern clinical teachers appreciate their responsibility to teach what is called 'social medicine'. In the teaching of clinical medicine every effort should be made to discuss the patient in relation to his domestic, social and occupational environment and, where relevant, to discuss his treatment in relation to such social therapeutic agencies as are available. This theme was elaborated in 'The Training of Students in General Practice'[1].

Ethics: Conduct of Medical Practice. It is also desirable that these subjects should be discussed by all clinical teachers, and in fact by all teachers, in the ordinary course of their teaching duties, the set courses of lectures in these two subjects being complementary to this teaching.

Lectures

Systematic lectures of text-book type should be abandoned. There is, however, in the opinion of the author, a case to be made for holding systematic co-ordinating lectures, the emphasis being upon co-ordinating clinical subjects with physiology, anatomy, pathology, and biochemistry, and with the sister clinical subjects. There is also a place for systematic lectures which review in balanced fashion the vast fields of knowledge which cannot be readily comprehended by students through their own reading. Systematic lectures must be complementary to practical work, and should aim at instructing on the importance of deduction, inference and thought. A short course of instruction in statistics by a broad-minded statistician has much to recommend it.

Seminars and Discussions

The seminar-discussion type of teaching is desirable in all years, particularly in the wards. In the 6th year, seminar-discussions in the Department of Medicine take place 3 times a week, at which the students themselves lead the discussion under the guidance of a member of staff. These discussions include each week one clinical pathological conference, one clinical case discussion, and one discussion on selected subjects which lend themselves to a discussion of the principles of co-ordination. The biochemist, the speech therapist, the ophthalmic surgeon, the endocrinologist, are invited to attend these discussions when related to their field of work. Through staff shortages it is not possible to achieve the ideal of co-ordination and co-operation in these discussions.

Student Numbers

For all teaching, but particularly for ward teaching, it is desirable that student groups should be small. In the 6th year, student numbers have been reduced to 3 or 4 per firm, in the 4th year to 8 or 9, and in the 5th year to 9-12. The small groups permit of fuller discussion of all the clinical aspects, mental and physical, of each case, and all the socio-economic and environmental aspects. They also permit of good interpersonal relations between staff and students. The students are invited to take the teacher to the case, rather than being taken by the teacher to cases of the teacher's choice. They are made to feel responsible for their cases.

Examinations

The elimination of examinations is, in my opinion, impossible unless the staff/student ratio permits of a tutorial system; for this a staff/student ratio of 1 : 4 is obligatory. Not only must the numerical ratio be correct, but the staff must be sufficiently experienced and senior to assess fairly the student performance. It would seem that in South Africa no medical school is at present well enough off to be able to afford the staff in all departments for a tutorial system. Examinations must therefore for the time being continue.

The students must not be permitted to think that once an examination is behind them they can forget that particular subject for the rest of the curriculum. The curriculum must be arranged and operated so as to maintain their interest throughout the course in the subjects with statutory examinations early in the course. Certain medical schools have attempted to insure against neglect of early subjects by holding all the statutory examinations at the end of the curriculum. This system throws an unbearable burden upon the students, and the standard of knowledge in all subjects has been found to suffer when all the examinations of the curriculum are concentrated together at the end. In this system, it is universal practice to hold, at the conclusion of the didactic course in these earlier subjects, 'class tests' which must be passed if the student is to proceed to the succeeding years. These class tests defeat the whole purpose of the postponement of the examinations to the end of the curriculum, since they have the force of statutory examinations.

The author's opinion is that there should be, as there are at present, 'stop' statutory examinations in selected subjects at various stages of the course, the stage at which these examinations are held depending on the subject and the general arrangement of the curriculum in each school. These subjects would include anatomy, physiology, pathology, public health, forensic medicine, and perhaps psychiatry. The teaching of these subjects must, however, continue in a sufficiently interesting and co-ordinated manner to attract the students and stimulate and maintain their interest through the subsequent years of the course. They should know that in the final examination in the clinical subjects, their knowledge of 'pre-clinical' and related sister clinical subjects will be tested.

The recording of regurgitated factual information should not be regarded as the sole function of an examination. The examination must be assessed as a test of approach, of method, of initiative, of knowledge, and of thoughtfulness. Very relevant to modern examinations is the remark of the Stoic philosopher of the 1st century, Epictetus, who wrote: 'As if sheep, after they have been feeding, should present their

shepherds with the very grass itself that they have cropped and swallowed to show how much they have eaten, instead of concocting it to wool and milk'.

The Intern Year

The intern year is not yet sufficiently well organized in South Africa to permit of its being a factor modifying the content and operation of the curriculum to any notable degree. The time may come in the future when the intern year must be spent at the mother school, in which case the curriculum may be adapted to regarding the intern year as an extra year of the curriculum. At present, about one-third of interns in South Africa serve their internship in a hospital away from their alma mater. Some proceed to other hospitals in South Africa, others proceed outside the Union.

General

During the curriculum, a certain amount of factual knowledge and of techniques must naturally be learnt by the student. He should learn enough of techniques to enable him to start practice, first as an intern and later as a medical practitioner, but these techniques should be taught and learned in such a way as to enable him to adapt himself later to the learning of new techniques required to deal with situations that he may meet in practice, that he has never met before. It is impossible, during a medical course, to instruct the students in *all* the techniques they may require in practice, and to instruct them in *all* the situations that they may meet. The volume of facts and techniques taught must not be so massive as to thwart thought, understanding and a sense of method. Karl Pearson, in his *Grammar of Science*, suggested that the true aim of the teacher must be to impart an appreciation of method and not a knowledge of facts. He admitted to having forgotten at least 90% of the facts that were taught him at school, but the notions of method which he learnt from his instructor in Greek grammar he had never forgotten. A synthesis by a single mind of all the knowledge that *could* be learned and taught is becoming increasingly difficult. The responsibility of selecting what should be taught, and of synthesizing, lies heavy on the teacher. It was Robert Hutchison who in 1925 wrote: 'Those of us who have the duty of training the rising generation of doctors must not inseminate the virgin minds of the young with the tares of our fads. It is for this reason that it is possible for teaching to be too up-to-date. It is always well, before handing the cup of knowledge to the young, to wait until the froth has settled.'

Lastly, all teachers entrusted with the responsibility of imparting to the students under their tutelage a balanced synthesis of the ever-increasing knowledge of Medicine would do well to take note of the views of Roger Bacon who, in the 13th century, wrote: 'Impediments to knowledge are too great dependence on authority, allowing too great weight to custom, fear of offending the vulgar, and the affectation of concealing ignorance by the display of a specious appearance of knowledge.'

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THE DURBAN MEDICAL SCHOOL: A PROGRESS REPORT

G. W. GALE, M.Sc. (S.Af.), M.B., Ch.B., D.P.H., D.T.M. & Hy. (Edin.)

Dean of the Faculty of Medicine, University of Natal.

Historical. In 1922 the late Dr. J. B. McCord and Dr. A. B. Taylor started a private school in Durban for the training of African men as doctors. Discouraged by the authorities, they abandoned their effort within a year.

In 1928 the late Professor Bews, in a programme for the development of University work in Natal, included a medical school in Durban. Also in 1928 the 'Loram' Committee on the Training of Natives in Medicine and Public Health recommended the establishment in Johannesburg of a medical school for Natives, segregated from the existing Medical School but under its control. It is interesting to note that at that time both the Cape Town and the Witwatersrand Universities were opposed to non-segregation. In 1938 the 'Botha' Committee on Medical Training recommended 'that the establishment of a separate medical school for non-Europeans in the future be envisaged; for this purpose we think Durban would be the most suitable centre.' Dr. E. G. Malherbe, now Principal of the University of Natal, was Secretary to that Committee. Early in 1944 the Natal Coastal Branch of the Medical Association took the initiative in establishing, jointly with the University and with other interests, a Committee to work for the establishment of a medical school. Towards the end of the year appeared the 'Gluckman' Report of the National Health Services Commission, which said that 'the balance of evidence was in favour of Durban as the site of a medical school primarily for non-Europeans but also for those whose object is to serve non-Europeans.' Dr. Gluckman, when he became Minister of Health, used his influence to secure Government approval, in 1947, for a medical school in Durban 'primarily for non-Europeans.' The mode and amount of Government financial support was still under discussion when, in 1948, there was a change of Government. The new Minister of Education—the late Dr. A. J. Stals, who was also Minister of Health—approved of a School 'exclusively for non-Europeans.' In 1950 the Government entered into definite financial commitments with regard to the School. Dr. A. B. Taylor was appointed Acting (part-time) Dean, and in

1951 the first students were enrolled. The present writer was appointed whole-time Dean in March 1952.

THE PRE-MEDICAL COURSE AND THE WENTWORTH BUILDINGS

The total course is 7 years, of which the 2nd to the 7th cover the 'minimum medical curriculum' of the Medical Council. In order to avoid confusion when making comparisons with other medical schools, the first year at the Durban Medical School is styled the Preliminary Year. The 2nd year is the 'First Year' and so on to the Sixth or Final Year. The pre-medical part of the course thus consists of the Preliminary Year and the First Year, both of which are conducted at the University Wentworth Buildings. Wentworth is the name of a suburb of Durban. The Buildings were erected by the Imperial Government during World War II and subsequently they were acquired by the Union Government and made available, on long lease, to the University. They comprise a dozen single-storey, well-built, brick hutments around a large quadrangle. During 1950 they were converted into and equipped as lecture-rooms, laboratories, and hostel accommodation. The cost of these conversions was £24,000, of which half was found by the Natal University Development Foundation (which collects donations from business firms and individuals) and the other half by the Government. In 1954 an additional hostel block was built for £8,000, the whole of which was provided by the Government.

The hostels accommodate medical students, both men and women, of all three non-European groups, and a few students from other faculties. There is a full-size sports field which was levelled free of charge by the Standard Vacuum Oil Company, whose huge refinery is immediately adjacent to the Wentworth Buildings.

The purpose of the Preliminary Year is to provide the student with a broader basis of general education before proceeding to his more specialized professional training. It is felt that this will help him, ultimately, from the professional viewpoint alone; and it will help him to make the kind of contribution to the cultural life of the community which is expected from members of the professions. During this year the students take full courses in English and in History, which in combination give them a better mastery of a western language and a better understanding of western cultural values and western institutions than, in general, they are able to acquire during their school days. They also take a full course in Botany and introductory courses in Physics and Chemistry.

In the First Year the subjects of study are Chemistry, Physics, Zoology and Sociology.

THE MEDICAL COURSE AND CLINICAL TEACHING FACILITIES

Full details of the curriculum for the final 3 years have not yet been worked out, and the details about to be given are subject to revision in the light of experience. Anatomy and Physiology (which include histology and biochemistry) are studied in the Second Year. The study of Pathology extends through the Third Year to the middle of the Fourth Year. Pharmacology—pharmacological physiology—is taught, within the Department of Physiology, during the Third Year; and Psychology is also to be taught in this year. During the second half of the year introductory clinical courses will be given.

In accordance with universal modern trends in medical education and with the special needs of students whose practice will be mainly if not solely outside of hospitals, a Department of Family Practice is being set up equal in status to the Departments of Medicine, Surgery, and Gynaecology and Obstetrics. This is being made possible in the first instance by a grant of £42,000, over a period of 5 years, from the Rockefeller Foundation, and by the cooperation of the Union Department of Health. The latter will contribute towards the salaries of personnel and will make available, for teaching purposes, the services maintained by it at the Institute of Family and Community Health where, over the past 8 years, family practice has been developed which combines preventive with curative personal health services. The personnel of the Department of Family Practice will, like those in the other clinical departments, combine teaching with service functions. It is hoped that students will attend the practice of the Institute throughout the whole of the clinical period, in the same way as they will attend the practice of the teaching hospital.

The teaching hospital is the King Edward VIII Hospital, with 1,300 beds shortly to be increased to 1,550, all for non-Europeans. This hospital deals with every kind of disease except tuberculosis, leprosy and mental disorders. In obstetrics it has an output of over 8,000 deliveries annually. For instruction in tuberculosis there is available in Durban the King George V Hospital with over 1,000 beds for non-Europeans; for leprosy there is available, 4 hours from Durban, the Amatikulu Leper Institution with 400 African inmates; and for mental disorders there is available, 1½ hours from Durban, the Fort Napier Mental Hospital with several hundred beds for non-Europeans.

For internships there will be available not only the hospitals already mentioned but also the McCord Zulu Hospital, in Durban, and several provincial hospitals, notably the 750-bed hospital at Edendale just outside Pietermaritzburg.

The Medical School Building. This building is situated in the same block as the King Edward VIII Hospital, to which it is thus immediately adjacent. The land was purchased from the Municipality by the Natal Provincial Administration, in whose ownership it remains. There is sufficient land to provide for further developments such as a Dental School. Unfortunately there is a prohibition against the provision of hostel accommodation, so that students (other than those whose homes are in Durban) are compelled to reside either at the Wentworth Hostel, 5 miles distant, or in private lodgings, which do not usually provide favourable conditions for study even although they may be nearer to the School.

The building is a single block 6 storeys high. It is H-shaped, with the cross-piece very high up and equal in length to the two limbs. In this centre-piece, which constitutes the main front of the building as seen in the accompanying photographs (Figs. 1 and 2), are provided the dissectingrooms, laboratories, tutorial rooms and other undergraduate teaching units. Their capacity is 40 students in each of the 5 years. The intention is later to

Fig. 1. Durban Medical School

construct equivalent accommodation in a cross-piece which will complete what will thus become a quadrangle; and the School will then cater for 80 students in each year.

In one limb of the H are provided the 'communal' services—2 large lecture theatres each capable of holding 180 students, library, museum, students' common rooms and refectory, workshop, and the administrative offices. In the other limb are provided staff private rooms and research laboratories pertaining to the various depart-

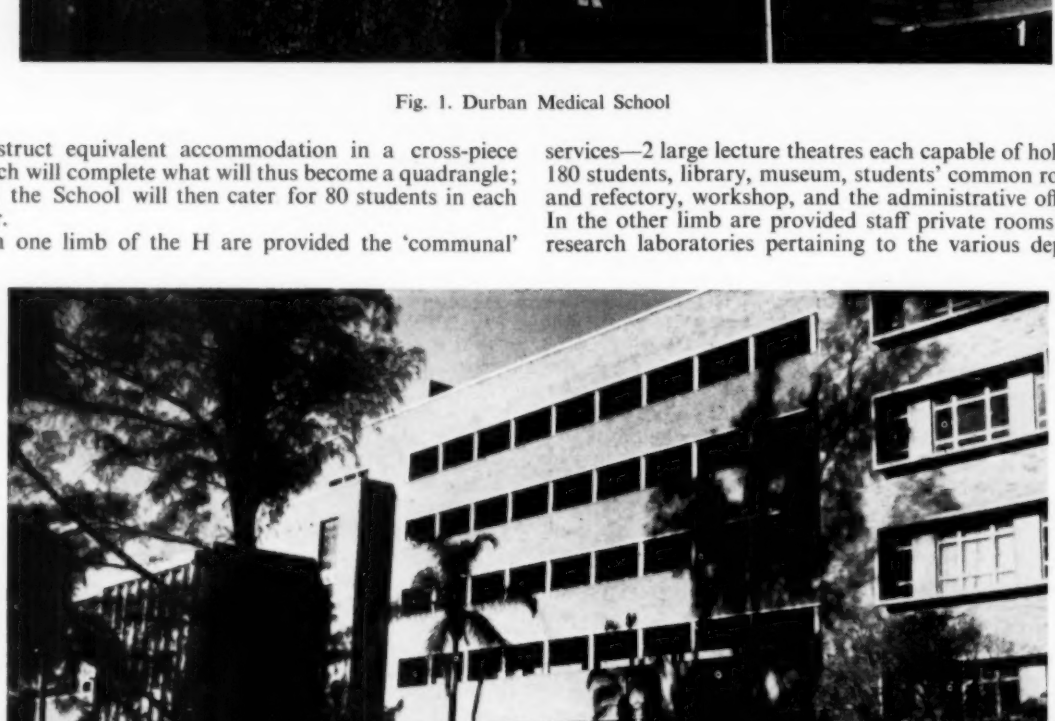

Fig. 2. Durban Medical School

ments. There are variations here and there from the foregoing pattern, but these need not be detailed in this general description.

The vertical plan is briefly:

Ground Floor—Anatomy, part of Surgery, Students' accommodation.

First Floor—Gynaecology and Obstetrics, other part of Surgery, Administrative Offices, and the lower part of a main lecture theatre which extends through to the second floor as well.

Second Floor—Pathology, Museum, and upper part of main lecture theatre.

Third Floor—Family Practice, Medicine, and Library.

Fourth and Fifth Floors—These contain the Department of Physiology (which includes histology, biochemistry, and pharmacological physiology) and a second main lecture theatre extending through the two floors.

Roof—A considerable portion of the roof is devoted to the housing of animals used by the Department of Physiology—baboons, monkeys, and the usual smaller animals. The accommodation provided includes operating theatre, post-mortem room, food storage and preparation rooms.

The building was commenced in April 1952 and has only recently been completed. The floor-space totals some 120,000 sq. ft. The total cost, including a considerable amount of built-in equipment, was just over £400,000. The whole of this has been provided by the Government. The building is first-rate and has effectually dispelled the fears of those who thought that a medical school for non-Europeans might be only second-rate. The anatomy department is air-conditioned, and the remainder of the building has artificial ventilation.

The moveable equipment has not yet all been provided. Up to the end of 1954 some £35,000 had been expended here and at Wentworth, and it is anticipated that during the next 3 years at least another £38,000 will be required. The Government has already contributed £21,200 towards moveable requirement and has promised £23,000 more. This leaves a shortfall of £39,000 to be met. An appeal has been made to the public for contributions, and it is pleasing to record that the Natives of Natal and Zululand, in response to a directive from the Paramount Zulu Chief, contributed in half-crowns the sum of £2,000 as their contribution. Indian merchants in Durban have promised several thousands towards special equipment for several of the laboratories.

TEACHING STAFF

Hitherto only 6 chairs have been established in the Faculty of Medicine—Anatomy, Physiology, Pathology, Medicine, Surgery, Gynaecology and Obstetrics. All were filled by the beginning of 1955. In addition 11 senior lectureships have been approved in the various departments, of which all but 3 have been filled and the senior lectureship in Surgery will shortly be filled. The senior lectureships in Anatomy and in Gynaecology and Obstetrics have not been filled, and are being replaced meantime by part-time staff. All appointments, including those in anatomy and physiology, are 'joint-staff' appointments (i.e. University with Provincial Hospital Administration) and there is no differentiation between the salaries paid to (medically qualified) staff in the 'pre-clinical' departments and staff in the 'clinical' departments. This fact is in accordance with the concept which it is hoped the School will demonstrate in practice, of a symbiosis between all departments in the School.

At Wentworth there are whole-time lectureships in English, Botany, Chemistry, Physics, Zoology and Sociology, each within the corresponding department of the University as a whole.

Ministerial approval was obtained for the establishment of a Chair, jointly with the Province, in Clinical Biochemistry—a field of great importance in relation to disorders, especially malnutrition, common among the Bantu. This has since been withdrawn but it is hoped that it will be renewed.

The Department of Family Practice mentioned above, will be in charge of a professor and several lecturers, to be appointed during 1955. They were not included in the enumeration above.

THE STUDENT BODY

It is not correct to describe the School as the Non-European Medical School. Apart from the fact that the staff are Europeans (except one of the lecturers at Wentworth, who is an African) there will be European postgraduate students; nor has the University surrendered its academic right to admit whom it will to the undergraduate classes, but has agreed not to admit any Europeans except with the prior concurrence of the Minister of Education in each case.

The Durban Medical School does not, of course, serve only Durban or even Natal. The great majority of its students are from outside Natal, and some from beyond the Union. Extra-Union Natives may be admitted provided they do not displace Union Natives. Under this provision a dozen students have been admitted from the High Commissioner Territories and the Central African Federation. The Union Government makes available 15 bursaries every year for Union-born Natives. These bursaries are each for 7 years, and are worth £150 a year for the first 2 years and £200 a year thereafter. Half the sum is really a loan, repayable at the rate of not less than £90 p.a. after qualification. Furthermore, bursars are required to undertake to restrict their practice to non-Europeans and to practise only in areas approved by the Government. Failure to fulfil these conditions involves liability to repay the whole of the sum advanced. If in any year there are not sufficient Natives eligible for bursaries, one may be awarded to a Coloured student, and one to an Indian, but no more. If there are fewer than 13 Natives eligible, the other bursaries must lapse. It may be mentioned that each year there are admitted, directly into the Second Year, a few students who have graduated B.Sc. or B.Sc. (Hygiene) elsewhere and have the necessary credits in the 4 pre-medical sciences. Some of these obtain bursaries which have lapsed through examination failures by the original bursars.

When the School was opened in 1951, 35 students were enrolled in the Preliminary Year. Including the 1955 enrolments, a total of 191 students have been admitted—159 to the Preliminary Year, 21 to the First

Year, and 21 to the Second Year. Of these 56 have fallen out for various reasons, leaving 135 in the School at the present time—38 in the Preliminary Year, 26 in the First Year, 35 in the Second Year, 22 in the Third Year and 14 in the Fourth Year. The first group of students to qualify M.B., Ch.B. (University of Natal) will do so at the end of 1957. The following table is of interest:

	Africans	*Coloured*	*Indians*	*Men*	*Women*
Enrolment, 1951-55 ..	108	9	74	161	30
Student body in 1955 ..	75	8	52	112	23

It may be mentioned that Africans and Coloureds whose domicile is in Natal are still free to go to the Witwatersrand and Cape Town Schools if they can secure admission there. But Indians whose domicile is in Natal (i.e. about 90% of the Indian population of the Union) cannot now obtain permits (from the Department of the Interior) to enter another province for the purpose of medical study, on the ground that facilities are available in their own province. This partly accounts for the relatively high number of Indians admitted. It will be noted that they are not as good 'stayers' as the Africans.

The reply to the often-asked, foolish, and tendentious question as to how non-Europeans 'compare' with European medical students is: (1) We have no means of making a fair comparison. (2) Our experience is far too limited anyhow. (3) Our students exhibit the same innate variations as students anywhere. (4) Their performance as a group in professional examinations is, on the testimony of external examiners drawn from the other Universities, equal to and indeed better than that of groups of students at the same stage elsewhere. It is not claimed that this indicates intrinsic superiority, but is due, probably, in part to the 2-year pre-medical course and in part to the small size of the classes, which allows of more individual tuition.

NAGRAADSE CHIRURGIESE OPLEIDING AAN DIE UNIVERSITEIT VAN PRETORIA

J. K. BREMER, F.R.C.S.

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Die grondslag van nagraadse opleiding met die oog op spesialisasie in die chirurgie of een van sy verwante rigtings, is dat 'n voltydse praktiese en teoretiese opleiding oor 'n tydperk van minstens 4 jaar nodig is. Om hierdie rede kan alleen geneeshere wat voltydse betrekkings as kliniese assistente in die Chirurgie aan die Algemene Hospitaal, Pretoria, beklee, tot die plaaslike nagraadse eksamen in die Chirurgie, nl. M.Med. (Chir.), toegelaat word.

'n Kliniese assistent doen voltydse kliniese werk in die Departement Chirurgie of in een van die onderdepartemente soos Ortopedie of Urologie, en terwyl hy hiermee besig is moet hy ook aan sy teoretiese studies werk. 'n Voorlopige eksamen in die basiese vakke, Anatomie en Fisiologie, moet afgelê word en word waarskynlik na 'n jaar of 18 maande geskryf. Die eksamen vir die M.Med (Chir.) graad mag aan die einde van die derde jaar afgelê word, maar die graad word nie toegeken totdat die kandidaat 4 jaar voltydse praktiese werk as kliniese assistent gedoen het nie.

Daar word dus geen teoretiese kursus bloot vir die graad in die Chirurgie gegee nie en persone word nie toegelaat om vir die M.Med. (Chir.) graad in te skryf tensy hulle die nodige praktiese ervaring as kliniese assistent aan die Pretoriase Hospitaal gehad het nie. In enkele gevalle kan, op grond van werk wat elders gedoen is, vrystelling van 'n gedeelte van die vereiste 4 jaar toegestaan word.

Op die oomblik is daar 6 kliniese assistentsposte in die Algemene Chirurgie, 4 in Ortopedie en 1 in Urologie. 'n Afdeling Neuro-Chirurgie begin binnekort en dit is waarskynlik dat hier ook geleentheid vir opleiding geskep sal word.

Afgesien van opleiding vir spesialisasie word ook aan enige geneesheer die geleentheid gegee om as 'n nagraadse student in te skryf, o.a. ook in die Departement Chirurgie. Die bedoeling hiervan is bloot om praktisyns wat graag hulle kennis van die nuwe ontwikkelings wil uitbrei, die geleentheid te gee om die werk van die departement by te woon. Daar word geen spesiale lesings vir hulle gereël nie, maar hulle kan enige voorgraadse of nagraadse lesings of besprekings bywoon. Hierdie werk is nie bedoel vir persone wat spesialiseer nie. Geneeshere wat van hierdie geleentheid gebruik wil maak, mag vir 'n kort tyd, bv. 'n maand, of langer, selfs tot 6 maande, inskryf.

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THE POSSIBILITIES AND FACILITIES FOR POSTGRADUATE STUDY IN OBSTETRICS AND GYNAECOLOGY IN SOUTH AFRICA

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The natural development and growth of our Country—keeping well in step with the rest of the world—has affected and changed our modes of living to a marked degree. Medicine in South Africa has changed dramatically, more so since the establishment of 4 medical schools (with a 5th in embryo) within the past 35 years. This is now the era of specialization. The doctor also has his special affinities, whether he be general practitioner or specialist. As it is the era of specialization by natural, yet rather rapid, evolution the demand for postgraduate work had to be met. Facilities for such comprehensive study were at hand, but had to be developed. With the Medical Council setting minimum standards, the Universities, now in conjunction with the Provincial Administrations, have gradually laid sound foundations on which future postgraduate work can be expanded.

Maternity Services. The maternity services (and well over 60% of Gynaecology depends upon Obstetrics) of our land have not kept pace with the good that modern medicine has to offer. There is as yet no planned maternity service like that found in the United Kingdom, Canada, Australia and New Zealand. It is by tackling a basic principle like the improvement of our maternity services and hand-in-hand with it, the improvement of our art, that the possibilities and facilities of postgraduate study in Obstetrics and Gynaecology in South Africa can be assessed.

As maternity services hinge around midwives and doctors and as this paper concerns itself with postgraduate possibilities and facilities it is proposed to deal with the latter as they affect primarily the general practitioner, secondly the trainee-specialist and lastly the specialist.

THE GENERAL PRACTITIONER

Midwives excluded, most of the deliveries in our country are undertaken by general practitioners. In addition to this they are summoned by the midwives to all the complications the latter may strike. What, then, are the postgraduate facilities for the general practitioner in South Africa?

(*a*) In our medical schools bi-annual courses (of a week's duration) have now been instituted. During this period Surgery, Medicine, and Obstetrics and Gynaecology, together with the allied subjects, are taught. These courses are planned to be both refresher and stimulating in character.

(*b*) For basic appreciation of Obstetrics it is necessary for a student to be resident, as complications may arise in a pregnant or parturient patient at any time. Rooms have been set aside—in our teaching institutions—for general practitioners who wish to avail themselves of the opportunity of attending ward rounds, lectures and clinics, seeing and discussing abnormalities, and witnessing operations.

(*c*) It is being contemplated sending visiting 'teams' to the larger centres. The functions of these teams would be lecturing and possibly demonstrating techniques.

The editor of the *South African Medical Journal* has also latterly, very wisely, instituted a 'revision series'. These general articles are of immense value in keeping abreast of a subject.

Higher Qualifications. What have the Universities to offer by way of a higher qualification to the general practitioner who has developed Obstetrics and Gynaecology as a 'hobby', i.e. as his main interest? Careful detailed observation with spare-time study and thinking can be utilized towards a thesis for the M.D. It was a general practitioner and a so-called inferior student—Sir James McKenzie—who was stimulated along the way to his greatness in heart disease by being deeply affected by the death, in labour, of a young woman suffering from mitral stenosis. Clinical observations and their true assessment and interpretation are still, and always will be, the essence of good medicine. Should these be properly integrated and correlated in a thesis the degree of M.D. can and should be granted.

The Masterships granted by the Pretoria University—M.Med. (O. & G.)—and the Cape Town University (M. O. & G.), as well as the Diploma of the Witwatersrand University (Dip. O. & G.), each have their special regulations. Any general practitioner who fulfils the requirements—and these may be obtained from the Registrars of the particular Universities—is eligible for the examination.

THE TRAINEE SPECIALIST

For the individual who wishes to make Obstetrics and Gynaecology his life's work, excellent facilities are at hand. However, as is found in life in general, because these facilities are good the numbers applying are great and therefore disappointments are many. Attached to our Medical Schools today there are near 30 postgraduates working under conditions that, in this country, a University alone can offer, viz. clinical, laboratory and library facilities. At the time of their postgraduate study these individuals receive a living wage (ranging from £500 to £1,000 p.a., plus c.o.l. allowance). The 'tour' in a department usually extends over a period of 3 years. (For registration as a specialist, the Medical Council regulations require *inter alia* a minimum period of 3 years' work in a speciality, done in a recognized institution.)

Once again, because of the nature of our subject, the candidate resides in the hospital for a period of at least 2 years. The usual guidance, tutorials, and other postgraduate aids are fully utilized by these keen students.

The scope of their work gradually widens as the subject becomes unfolded to them. The pre-clinical disciplines play a vital role as no person can be taught proper judgment and operative skill without the sound foundation of the triad Anatomy, Physiology and Pathology. Because of the advance in anaesthesia, antibiotics and resuscitation, operations of undreamed-of magnitude are being done. A clear understanding—as far as is possible at present—of pre- and post-operative treatment with all its biochemical implications is required and is soon acquired. As it is imperative for all people to bear and develop responsibility, the clinical work given to these trainees gradually increases in both volume and weight. As one of the best ways of learning a subject is by teaching it, these men are made responsible for tutorials to undergraduate students.

Once the University's regulations have been fulfilled they can proceed with the higher examination, viz. Mastership or Diploma. Should the student develop a special affinity for a particular field he is encouraged in his researches and whilst pursuing them he may prepare a thesis towards the Doctorate. Obviously, it is not the function of the University to attend to the student's requirements for registration with the Medical Council. The fulfilment of the regulations rests upon the individual.

In the larger non-teaching centres there are hospital posts of different nomenclatures in the 4 Provinces, which may be likened unto junior registrarships. The standard of work done in these institutions is of a high order. For the aspirant obstetrician and gynaecologist this practical side is invaluable provided he does not neglect balancing the skill attained in this fashion with the very necessary theoretical background. The development of these hospitals and their posts should be the concern of all of us. A possible solution may well be 'zoning' hospitals with the University at the centre. These are possibilities to be considered; e.g., the division of Obstetrics and Gynaecology of a hospital 500-700 miles distant may be linked with the division in a University. A particular postgraduate's 'tour' may then be arranged in such a fashion that he may spend 6-12 months in the 'away' hospital and 2-2½ years in the University centre. I feel sure that the postgraduate and both centres would benefit by such an arrangement. Innumerable examples could be quoted but are best left to those who have the knowledge of their own surroundings.

THE SPECIALIST

Once registered as an obstetrician and gynaecologist does not mean that postgraduate study is no longer required. At present appreciable numbers of specialists are localized in 6 towns of the Union. The numbers are increasing and in the very near future specialists will be appearing in the smaller towns. The latter will not enjoy the benefits of monthly or quarterly meetings with their colleagues in order to discuss cases and/or developments. Both the members of the South African Society of Obstetricians and Gynaecologists and those attached to the Royal College of Obstetricians and Gynaecologists expressed their conviction at their latest Congress (held in Cape Town in January 1955) that bi-annual Congresses should be held so that we should all be kept informed about developments in our subject and learn much from each other as no single human being, on his own, can keep abreast of all the facets of his subject in a world speeding ahead at its present rate.

By the very nature of our country, with its vast spaces, great distances and scattered multiracial population, the ideal maternity service would be difficult to put into operation. A kindly understanding of each others' problems on the part of nurses, doctors, Universities, Provincial Administrations, and the Central Government will do much towards easing the situation. The brunt of the work—especially the abnormal—falls upon the doctor. It is therefore the responsibility of all of us who are faced with midwifery and the diseases of women not only to maintain our standards but to be on the continual look-out for improvement. Postgraduate facilities are present and can only be improved if utilized.

THE POSSIBILITIES AND FACILITIES FOR POSTGRADUATE STUDIES IN BACTERIOLOGY AND PATHOLOGY IN SOUTH AFRICA

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In common with other specialized branches of medicine, the field of pathology has shown considerable expansion in recent years. The decade since the end of World War II has seen a marked rise of specialist-pathologist private practice in South Africa and a widespread extension of pathological services in Provincial hospitals. This has led to a marked shortage of trained personnel, with the result that young men in this specialty have bright prospects before them.

The regulations of the South African Medical and Dental Council with regard to specialization in pathology demand that the graduate should spend 2 years in clinical practice before entering the field of pathology. Thereafter he is required to work in this field for 5 years during the course of which a higher qualification in that subject is obtained before he is eligible for registration as a specialist pathologist. Generally speaking, the opportunities for such studies can only be obtained in a University department or in large institutes such as the South African Institute for Medical Research.

At the Institute the training offered is that of 3 years in the routine diagnostic department, during which the

young pathologist moves from one department to another gaining experience in all branches of clinical pathology. At any time during his 4th or 5th year he is offered the opportunity of obtaining a higher qualification in pathology. This he may do by spending an academic year studying at the University of the Witwatersrand for a Diploma in Clinical Pathology (D.C.P.) or by proceeding overseas where a similar diploma is offered at the British Postgraduate School, Hammersmith. Other higher qualifications which are available in Britain are the Diploma in Pathology (Dip.Path.) of the Royal College of Physicians and Royal College of Surgeons, in which no systematic course of study is required but a searching examination in all branches of clinical pathology is carried out. The Diploma in Bacteriology (Dip.Bact.) at the University of London, which also requires an academic year of full-time study, provides another method for acquiring the necessary higher qualifications. A higher qualification may also be obtained at the Institute by pursuing a particular line of research in one or other of the departments with a view to writing a thesis for a doctorate in medicine (M.D.).

During the period in which the young pathologist is working towards a higher qualification, whether it be a D.C.P. at the University of the Witwatersrand, an M.D., or a qualification at one of the overseas universities, he continues to receive a salary from the Institute and is given sufficient leave to obtain the qualification in question.

At the Universities of Cape Town, Natal and Pretoria, a limited number of registrar-pathologists are admitted to the staff each year and, as at the Institute, are moved from one department to another over a period of 3-4 years, during which they gain experience in all branches of clinical pathology. At the end of the 4th year the registrar-pathologists in the universities are allowed to sit examinations leading towards the degree of M.Med. (Path.).

Once the graduate has obtained the higher qualification required by the Medical and Dental Council and has completed 5 years of work in the field of pathology, he is eligible for registration as a specialist pathologist. With this qualification a wide field is open to him. He can, if he wishes, continue to practise as a clinical pathologist in a laboratory such as that of a Provincial hospital laboratory or at the other diagnostic laboratories in which all branches of pathology are undertaken. Alternatively he can direct his energies and his interest into a more specialized field by concentrating on a single branch such as histopathology, haematology or bacteriology. Opportunities for pursuance of these specialized subjects at the Universities, at the Institute, in the Government service and in private practice are innumerable.

HEALTH SERVICES IN UNIVERSITIES

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Student health services are no innovation. Nearly a century ago a student health service was established at Amherst College in the United States; but only in recent decades have other American and British universities established similar services. Although the poor health of recruits to the armed forces of Britain in the South African War and World War I stimulated interest in preventive medicine, the first student health service was established in Britain only in 1930.

Since that date a number of other British universities have established schemes for the provision of various types of health services for their students.[1] For historical reasons, those institutions which established student health services after World War II tended to provide preventive services only, whilst those of an earlier vintage were inclined to be more comprehensive in their scope. Parnell [2] was able to report that in 1950 only 4 out of 17 British universities still had no whole-time student health officer, and that outside of Britain and America there were known to be 58 university health services in 25 different countries. In South Africa, at least 3 of our universities and colleges have recently established services aimed at safeguarding student health.

THE UNIVERSITY PRACTICE

The community which constitutes the practice of a student health service presents some special features.

For the most part students are young adults of a relatively healthy age-period, who constitute a shifting population and spend only 9 or 10 months of the year at the university. Many are still growing physically, which necessitates a high intake of energy-producing and body-building foods; and although students in general constitute the most intelligent section of the population, they do not necessarily pay proper attention to their diets. The example may be quoted of the young South African medical graduate who developed a nutritional oedema whilst studying for a specialist degree overseas; the fact that he passed the examination at the first attempt suggests that he was not mentally subnormal. In other cases, subnutrition is due to social factors such as absence from home or economic stress. Although South African students are on the whole better off than students in many other countries, some of our students are affected in health by the stress of financial problems.

Late adolescence is associated with problems of social and sexual development. The difficulties of satisfying the needs of this period of life are often aggravated by absence from home, usually for the first time.

South African universities draw students from a wide area. At the University of Cape Town in 1954, 22% of the men students and 37% of the women students lived in official residences. As many others live in

'digs', a large proportion of students must live away from their families; and at a transitional and formative stage in the lives of these young people, the absence of family support and advice is a distinct handicap.

On the other hand the family background is often a cause of difficulty for the young student. This may be due to parental ambition in excess of the student's capabilities, or to instability of the home. The young student may respond to this insecurity by obsessional overwork or by excessive interest in extra-curricular activities, or he may sink into a state of anxiety, irrationally blaming irrelevant factors for his failure to cope with his problems.

Despite economic, physical and intellectual advantages it is evident from the surveys carried out at British universities that students carry a considerable load of ill-health. At Edinburgh University, Verney and Robertson [3] reported that of 1,140 new students who presented themselves for routine health examination, 27% were found to have minor physical defects, 2% major physical defects, and 7% psychological difficulties. Parnell [4] found that among 6,142 students followed up for 3 years at Oxford there were 35 deaths (17 accidents, 9 suicides, 2 from poliomyelitis, 1 from tuberculosis and 6 from other causes). In the same period there were 145 cases of prolonged illness necessitating absence from study for at least one term. Of these cases, 33 were due to tuberculosis and 76 to mental and nervous conditions. According to Malleson [5] 10% of students at University College, London, were emotionally distressed.

As yet there are no comparable statistics with which to measure student health at South African universities. To judge from the forms completed after the medical examination of volunteer students at the University of Cape Town, one is forced to the conclusion that there is a considerable amount of illhealth among South African students as well.

SCOPE AND METHODS OF STUDENT HEALTH SERVICES

While organized health services for students exist in the majority of British and American universities, the scope and the administration of these services shows great variation.

The American health services tend to be the most comprehensive. The University of Minnesota scheme, initiated in 1918 and now serving 18,000 students and staff, has a full-time staff of 8 physicians, 4 psychiatrists, 15 dentists, 23 nurses and 32 clerks, as well as 50 part-time specialists and a hospital of 60 beds.[6] Its objects include the education of students in relation to health, the improvement of their physical and mental health, and the prevention of disease. The most effective way of achieving these ends was believed to be the provision of a health programme which was thorough, complete and efficient in every aspect.[1]

In Britain the lead was taken by Edinburgh University, where a Department of Physical Education was formed in 1930,[3] including a scheme for a medical service. The authors of this scheme had 6 principal objects in mind, *viz.*:

'1. To obtain by medical examination at the beginning of the first academic year an accurate estimate of the physical state of each student entering the university.

'2. To advise and treat students found at the routine examination to be not wholly fit.

'3. To encourage students to undergo routine medical examination in each of their undergraduate years.

'4. To create an efficient consultative and domiciliary medical service to advise and treat students requiring medical attention.

'5. To interest the students in the importance of physical education and recreation as an essential part of their university curriculum.

'6. To obtain data concerning the health of the students and to assess the effects of the various strains and stresses (mental, environmental, nutritional, etc.) to which they are subjected.'

A few years later a similar comprehensive student health service was established at the University of Aberdeen, where compulsory health examinations for students were favoured.

The 1944 Goodenough Report stated:[7] 'We hold the view that universities have responsibilities in respect of the health of their students and that for the fulfilment of these responsibilities each should provide a properly organized students' health service. The need for such provision will exist even after the proposed national health service has been developed .... We believe that university authorities are .... in need of advice from medical officers whose duty it is to keep under close observation all matters likely to affect the health of the students, collectively and individually'. The Committee considered that the objects of the students' health service would be the prevention of disease and the promotion of health. Health examinations would be carried out with a view to the early detection of disorders, and medical officers would give advice on both physical and psychological problems; but medical treatment would be outside the province of the service. The service would be one of the means of inspiring the community to a sensible interest in the promotion of health. For medical students the service would be of especial benefit because of their exposure to greater risk of contracting disease, and also as providing a practical demonstration of doctors in the role of health advisers. For medical students health examinations should be compulsory.

Student health services were established at a number of British universities after the end of World War II. Most of these newer services followed the pattern suggested by the Goodenough Report and provided only preventive and promotive health services. It is noteworthy that students do not contribute directly to the costs of health services at British universities. The only exception is that at University College, London, which was sponsored by the students themselves and where each student contributes 5s. a year.[6]

In Australia a number of universities have services for the detection of tuberculosis among students.[8] At the University of Adelaide a fuller service, including general examination, X-ray of chest and advice and action on other matters concerning health has been

provided since 1937. In 1951 medical examination was made compulsory for all students.

STUDENT HEALTH SERVICES IN SOUTH AFRICA

A benefit scheme was in operation at the University of the Witwatersrand in 1921, but the first minutes of the existing society are dated March, 1936. Shortly after this a health service for medical students was organized by the Department of Medicine. In 1942 the benefit scheme and the health service were combined and all students included to form the existing 'Students Health Insurance Society', the objects of which were to provide an annual medical examination for students and, secondly, to assist them in meeting the costs of medical care. Six part-time specialist physicians drawn from the Medical School provide the clinical services and are paid per attendance. Part-time medical officers are attached to residences of the University and are paid an annual honorarium plus a travelling allowance. The income of the society is derived from university fees, £1 of the Students' Council fees of full-time students being automatically credited to the society, with the exception of medical students, who pay only 10s. and benefit only from the use of the clinic.

In case of illness, students choose their own doctor, pay their accounts and are entitled to claim a reimbursement from the society for a proportion of the expenses. The main object of the clinic is preventive, and although the original intention was that every first-year student should undergo compulsory medical examination, this has not been achieved, owing to objection to compulsory examination by the university authorities, as well as to lack of funds and the absence of enthusiasm and co-operation on the part of the students. At present the bulk of the work done at the clinic consists in investigation of physical complaints and only 13% of the student body have had routine health examinations over the last 3 years.

At Fort Hare University College, where most of the students live in hostels, a medical officer examines all new students and treats sick students, if necessary, in the hostel sickrooms.

At the University of Cape Town a similar type of student health service was initiated in 1948, and put on a firm basis in 1952. For the same small annual payment it offers a routine health examination to all students and pays refunds on medical expenses incurred by them. The staffing and financing of the service are very similar to that of the University of the Witwatersrand and examination is entirely voluntary. Mass miniature X-ray of the chest is arranged with the Cape Town City Health Department for those students who wish to use this facility. A questionnaire to elicit relevant facts relating to the student's past history, family history, living and recreational habits, etc., has been in use since the inception of the scheme.

It is interesting to observe the use which students at Cape Town made of the service offered them (Table I). Whilst the number of claims for medical care has remained steady, the number of students who come for routine health examinations has dropped steadily during the first 3 years of the service's existence. This can be partly explained by the fact that, since the average

TABLE I. UTILIZATION OF STUDENT HEALTH SERVICE, UNIVERSITY OF CAPE TOWN

	1952		1953		1954	
	No.	%	*No.*	%	*No.*	%
Membership of Student Health Service	3,870	100	3,552	100	3,722	100
Students examined ..	1,949	50	1,331	37	943	25
Students who underwent chest X-ray ..	405	10	1,200	33	795	21
Students who made medical claims during the year ..	217	5·5	216	5·9	173*	4·6*

* Approximately 8 months only.

stay of students at university is about 3 years, there has been a rising proportion of students who have already undergone routine examination, and since repeat examinations are less frequently sought than initial ones, a drop in attendance was to be expected. Other factors which probably played a part in this fall are the lack of enthusiasm of students generally for routine examination; the new policy in 1954, which placed the onus of making appointments for examination completely on the student; and the fact that there was no full-time medical officer to the scheme, whose sole or main interest was student health.

DISCUSSION

A rapidly growing number of universities are establishing services to safeguard the health of students (a notable exception is Oxford University, where none exists despite the results of a pilot survey [4, 9]). A number of these services have been established on the initiative of the university authorities, but some have resulted from demands on the part of the students.

The great majority of student health services are reported as being run by one or more full-time medical officers, usually assisted by ancillary staff as well as part-time specialists.

Most of these student health services provide facilities for combined preventive and curative services. However, the curative services are often provided by medical practitioners unconnected with the university, e.g. the family doctor if the student is living at home, or any other doctor the student may choose to consult. In Britain, the establishment of the National Health Service has facilitated the combination of preventive and curative care in one medical officer's hands by allowing the university medical officer to act as general practitioner to students.[10]

The case for the combination of preventive and curative services in a comprehensive student health service is strongly put by Macklin [11] of Aberdeen, who places high value on the doctor-patient relationship in student health services. Doctor and student get to know each other better if they meet during routine health examinations as well as at times of sickness.

The work of the doctor becomes more interesting, and his advice is more pointed and more often heeded if he acts in this dual capacity.

At Edinburgh [3] the high proportion of first-year students (74%) who voluntarily accepted routine health examination is probably due in no small part to the appreciation of the comprehensiveness of the service offered by full-time medical staff whose interests are centred in problems of student health.

Against this are the advantages to be gained from freedom of choice of doctor for either health care or medical care or both.

Whether routine health examination should be voluntary or not is the subject of much argument. The British Medical Students' Association, the Inter-Departmental Committee on Medical Education,[7] the Universities of Aberdeen,[11] Birmingham,[10] Leeds [6] and Belfast,[6] and 70% of American colleges [13] are in favour of compulsory health examinations, e.g. for freshmen or medical students. Student health services at Manchester,[6] Cambridge,[6] Edinburgh,[3] Witwatersrand and Cape Town do not require compulsory examinations of any groups of students.

Screening methods are used by a number of student health services to lessen the labour of routine health examinations. At Manchester University [6] a 4-page questionnaire containing some 200 items is given to about 1,500 freshmen annually. The secretary and nursing sister of the service refer about 500 doubtful students to the Medical Officer on the basis of the answers. The Medical Officer finds it necessary to examine or take some other action in about 350 of these cases.

In Birmingham [10] all freshmen are rapidly examined by means of an 'assembly line' technique in the first week of the new year. A team of about 16 helpers (mainly medical students) assist the two medical officers and dentist to apply a battery of tests, completing the examination of 700 students in 30 working hours. A similar system is used in some of the American universities.

Medical certificates from the student's general practitioner are used by 25% of American university health services. At the University of Wales [12] general practitioners are not asked to examine prospective university entrants but to give an opinion based on previous knowledge about their general health, and to state whether there was a history of illness or disability likely to be a handicap to a university career or which would make continued supervision or treatment necessary. In this way continuity with the medical care given by the general practitioner is maintained.

The ratio of doctors to students naturally varies greatly in different services. Farnsworth,[13] reviewing American university health services, states that the ratio in the United States is slightly more than one full-time physician, and slightly more than 2 nurses, per 1,000 students. Macklin [11] estimates that one full-time physician can find time to carry out 1,000 40-minute health examinations a year as well as look after the sickness needs of 1,800 students.

Two health hazards are given prominence in most university health services, viz. tuberculosis and mental health.

Routine annual X-ray examination of the chest to detect cases of tuberculosis is provided by most services and in some it is compulsory. Durfee [14] reported that 12 times as many cases of tuberculosis were found in American colleges with a tuberculosis case-finding programme than with those without such a programme. In some universities BCG vaccination is given to negative tuberculin reactors.

The need for facilities for preventive and curative services to cope with the psychological problems of students is stressed by practically every author. In most services full-time or part-time psychiatrists are available.

Apart from the value of the student health service as a method of caring for the health of individual students, various other functions have been mentioned which are worthy of consideration:

1. The student health service and its staff can provide preventive services on a community level, e.g. health education of staff and students, supervision of kitchens and refectories to reduce the frequency of outbreaks of gastro-enteritis in universities, co-operation with those in charge of athletics and physical education, etc. University health services can and do advise the authorities on matters of individual and group health.[7, 15, 16]

2. Research into the state of health of the student body can best be done through a student health service. Very little is known of the health needs of students, the effects of university life and social background upon their health, and the medical aspects of student selection, to mention only a few fields requiring investigation.

3. The value of a well-run student health service in providing a practical demonstration to medical students of medical practitioners in the role of health advisers.[7]

CONCLUSION

University authorities in many countries are now accepting responsibility for the health of students, a most important occupational group. Where the authorities do not, or cannot, accept this responsibility the students themselves are in several instances taking the necessary steps to establish student health services. Among the services provided have been facilities for health examination, consultative services, treatment services, supervision of the physical environment of students, medical benefit schemes, and the development of physical and health-education programmes.

Although university students form only a small proportion of the total population, their influence is likely to be out of all proportion to their numbers, because they are the future legislators, teachers, architects, engineers, doctors and scientists of the country. It is therefore of paramount importance that these young people should develop scientific attitudes, knowledge and habits of health which they will spread among their communities. A well-run student health service

in their university constitutes a valuable educative force.

It is a pleasure to acknowledge my indebtedness to the numerous medical officers and other officials concerned with student health services in South Africa and overseas who have been so generous in providing information and help.

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EVALUATION OF 1954 FIELD TRIAL OF POLIOMYELITIS VACCINE

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ABSTRACT OF SUMMARY REPORT

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During the spring of 1954 an extensive Field Trial of the prophylactic effectiveness of formalin-inactivated poliomyelitis vaccine, as developed by Dr. Jonas Salk and his associates, was initiated by the National Foundation for Infantile Paralysis.

The Poliomyelitis Vaccine Evaluation Center was established at the University of Michigan for the purpose of impartially collating and analyzing data collected through the combined efforts of many thousands of health-department workers, practising physicians, physical therapists and laboratory people scattered through the 211 participating study areas in 44 states.

The study design was dictated by both scientific and practical considerations, necessary in a project of such scope and dependent on the good will and abilities of so many people of varying capacity. They involved the organization and execution of the vaccination clinic program, the maintenance of detailed and accurate records, as well as the thorough investigation, according to a detailed plan, of each reported case of poliomyelitis in the area. Originally, it was deemed impractical to establish a strict placebo control experiment, with the complex administrative problem of giving 3 injections in sequence to each child, without knowing the nature of the material being used. Thus, all states were invited to participate on the basis of administering vaccine to volunteers in the 2nd grade of school. Later the poliomyelitis incidence in these children would be compared with that in the uninoculated 1st and 3rd grade population. This study plan had certain scientific limitations, related primarily to possible bias, at all levels, in the follow-up of study children. Obviously it was essential that non-vaccination children be studied with the same degree of care as the vaccinated so that the discovery and diagnosis of cases of poliomyelitis in test and control groups would be strictly comparable. In order to achieve such an impartial comparison it was essential to introduce a so-called placebo control study into the existing plan. This type of study was carried out in 84 areas of 11 states signifying the interest in doing so (Table 1a). In 127 areas of 33 states the original, or observed control, study was carried out (Table 1b). The specific study areas were selected because of their consistently high poliomyelitis incidence during the past 5 years.

The tremendous clinic program was accomplished according to plan during April, May and June. In placebo control areas (Table 1a) the study population (1st, 2nd and 3rd grade) included 749,236 children; 455,474 (or 60·8%) requested participation; 200,745 (26·8%) received 3 injections of vaccine, and 201,229 (26·9%) 3 injections of placebo, an identical material which, however, contained no poliomyelitis virus or monkey kidney protein. In observed control areas (Table 1b) the study population totalled 1,080,680 children in the first 3 grades; 221,998 2nd-grade children (20·5% of the total) received 3 doses of vaccine.

The first problem of evaluation was that of collecting and verifying basic information on each of the 1,829,996 children in the study population. These data, which included the name, address, age, sex, history of polio or other crippling condition, participation status and dates of vaccination, if any, for each child, were transferred to punch cards, and tables describing the population were prepared which would serve as the denominators over which the discovered cases of polio would be placed for the determination of polio attack rates in vaccinated vs. control and in other segments of the population. During December 1954 an interview survey was conducted on 1,100 study families in 10 states in order to gain more insight into the differences existing between participants and non-participants (p. 13). This demonstrated striking differences in income level, community activity, health conveniences, education level, etc., which in turn assisted the center in deciding

what control population would be most useful, in the observed control areas.

The question of safety of the vaccine (pp. 18-21 and 41-42) was assessed through specific studies of the cause and extent of absenteeism from school following inoculation in Pittsburg and Schenectady, N.Y. The experience was identical in vaccinated and control subjects and no significant reactions were observed. From records obtained during the clinic program, the following distribution of minor reactions was observed: Placebo control areas—931 reactions or 0·4% in vaccinated and 939 or 0·4% in those receiving placebo. Of the so-called 'major' reactions, none of which could be clearly attributed to inoculation, 9 or 0·004% occurred in vaccinated and 13 or 0·006% in the placebo control. These findings, plus other data referred to in the text, fail to implicate the vaccine as a significant cause of untoward reactions.

Also bearing on the question of safety is the review of 129 cases occurring up to the 1st month after inoculation (p. 20). Here again, there is no evidence implicating vaccine as a source of infection. Furthermore, study of the location of the paralysis failed to demonstrate any localization of involvement to the left arm, where all injections were given.

For the purpose of measuring the antigenic potency of the various lots of vaccine used, blood samples were collected prior to vaccination, 2 weeks after the 3rd clinic and again 5 months later from 40,881 children (p. 3). Results from the study of sera from 9,000 of these are now available for analysis and served as the basis for classifying lots of vaccine into good, moderate, low moderate, and poor categories (pp. 21-25). There was wide variation in the response to various lots, as used under field conditions. In general, the response to Type-I polio virus was inferior to that for Types II and III. Data from the study of the 3rd bleeding are less complete but indicate some persistence of antibodies 4-5 months after completion of the series of vaccinations. Some decline in antibody titer was observed, particularly in those children vaccinated with so-called poor lots; however, the levels in vaccinated children persisted in being distinctly higher than in the associated control children.

The second problem in evaluation was concerned with the discovery and investigation of all cases of poliomyelitis or suspected poliomyelitis in the study population. The various steps in the investigation are discussed at length in the report, but consisted essentially in the initial case report; a clinical epidemiological report; muscle evaluation by one of 67 specially-trained physical therapists 10-20 days and 50-70 days after onset of illness; the review of these findings by clinical experts; and the laboratory study of stool and blood samples from the patient, for the isolation of poliomyelitis or other virus and the search for poliomyelitis antibodies. An important phase to all the above studies and applying particularly to the work of the PT and laboratories was the attempt to standardize the procedures used in all areas, so that the findings would be directly comparable in all segments of the study. Finally, rigid criteria were established for reaching the final diagnosis. Each study case was finally classified before the vaccination status was revealed, thus assuring unbiased interpretation of all data.

RESULTS

The comparison of the poliomyelitis attack rate in vaccinated and control populations is presented through a sequence of steps, each one attempting to purify further the diagnosis. A total of 1,013 cases was reported in the study population with onset during the period 2 weeks after the 3rd vaccination clinic to December 31 1954. These are classified in placebo control areas as follows: 67·5% paralytic, 17·6% non-paralytic, 7·2% doubtful, 7·6% not polio.

As a first step, the total reported cases, total cases considered to be polio, total non-paralytic and total paralytic in both placebo and observed control areas were examined (Table 2b). Through these stages of purification there is a progressive increase in the percentage of effectiveness displayed. No significant difference was detected in the rates of non-paralytic poliomyelitis in test and control groups. However, when these cases and those called not polio are removed, so that only paralytic cases remain, an estimate of 75% of effectiveness is obtained in the placebo areas, and 62% in the observed areas.

Next (Tables 3a and 3b) more detailed attention was given to the effect of vaccine with respect to clinical type and extent of paralysis. The most striking effect was observed in bulbospinal disease, perhaps because this characteristic clinical pattern is so readily differentiated as being truly poliomyelitis. In this group, the estimate of effectiveness in placebo control areas was 94% with a lower limit of 81%. The effect noted in spinal paralytic polio was less striking, 60% with a lower limit of 39%. In observed control areas, these differences were even less pronounced but still highly significant.

A further refinement in analysis was to consider the effect of vaccine in patients from whom poliomyelitis virus was isolated (Tables 5a and 5b). These furnish a higher degree of confidence in diagnosis. In cases classified as spinal paralytic, the effectiveness was the same in placebo and observed control areas, 82 and 83% respectively, and the corresponding lower limits of effect were 65 and 64 respectively. Enforcement of laboratory criteria for diagnosis apparently eliminated a substantial number of cases which were less influenced by vaccination, and, undoubtedly among them, were many illnesses which actually were not poliomyelitis. The effect in bulbospinal polio, with laboratory confirmation superimposed, was 91% in placebo control and 60% in observed control areas.

The next step (Tables 6a and 6b) was to examine the effect of vaccine with reference to the specific type of poliomyelitis virus isolated. In placebo control areas the effectiveness was 68% against Type I, 100% against Type II (significant at ·05 level), and 92% against Type III. This clearly agrees with the previous demonstrations that most lots of vaccine were less antigenic against Type I than against the other two types. In addition, the effectiveness of different lots of vaccine varied considerably as measured by the occurrence of poliomyelitis.

'From these data it is not possible to select a single value giving numerical expression in a complete sense to the effectiveness of vaccine as a total experience. If the results from the observed study areas are employed, the vaccine could be considered to have been 60-80% effective against paralytic poliomyelitis, 60% against Type-I poliomyelitis, and 70-80% effective against disease caused by Types II and III. There is, however, greater confidence in the results obtained from the strictly controlled and almost identical test populations of the placebo study areas.

'On this basis it may be suggested that vaccination was 80-90% effective against paralytic poliomyelitis; that it was 60-70% effective against disease caused by Type-I virus and 90% or more effective against that of Type-II and Type-III virus. The estimate would be more secure had larger number of cases been available.'

OTHER STUDIES

Several supplemental analyses are presented in the body of the report, which have bearing on evaluation and are mentioned briefly here.

1. The effectiveness of vaccine in preventing cases of poliomyelitis classified by extent of paralysis on the basis of the first muscle examination was compared with that, based on the second muscle examination, which in essence, measured the extent of residual paralysis (Tables 9a and 9b). This later group demonstrated a much more striking preventive effect, which becomes more distinct as the severity of the disease increases.

2. Study (pages 39-41 and appendix table) of the polio attack rate by individual years of age in test and control groups serves to confirm the other observations on effectiveness, although in placebo control areas the difference seen in 6-year-old children was not statistically significant. There appears to be a progressive increase in effect as age increases, based on the limited data and narrow age-span included in this study.

3. The poliomyelitis experience in the study areas of Massachusetts and central N.Y. state is subjected to detailed analysis (p. 43-44) since the reported disease in these areas was extremely mild and doubt exists as to whether many of the illnesses are due to poliomyelitis. Of the 44 cases reported from Massachusetts polio virus was recovered from only 3. Unidentified or so-called 'orphan viruses' were recovered from 31. A somewhat similar experience occurred in central N.Y. state. In these areas the effect of vaccine was much reduced or difficult to detect. The role of the 'orphan' viruses in causing illness has not been established and needs further study.

4. The studies carried on in Canada and Finland (pp. 44-46) were limited in scope and differed somewhat in design. However, despite the small number of cases of poliomyelitis occuring in study children, a significant preventive effect was demonstrated on refined analysis.

5. A major activity in the Field Trial areas was the investigation of all cases of poliomyelitis, where a study child resided in the household. Analysis of these data (p. 47) in placebo control areas indicates that among the 233 vaccinated children exposed to a case of poliomyelitis in the family, only 1 developed a laboratory confirmed illness, a Type-I infection (0·43%). On the other hand, among 244 children who had received placebo and were exposed under similar circumstances, 8 developed laboratory confirmed poliomyelitis (3·28%). This is a statistically significant difference. This was not correspondingly distinct in the observed study areas.

6. Although it was urged that gamma globulin should not be used in the study population during the course of these investigations, inevitably some was used for measles and hepatitis prophylaxis and for both family contact and mass application in connection with poliomyelitis. Records of this use were collected and the tabulation indicates that during the period 1 May-31 December, in placebo control areas, only 0·9% of the vaccinated children and 1·1% of those given placebo received some gamma globulin.

In observed control areas the use was even less, 0·4% in both the test and control groups. No matter what one believes about the practical effectiveness of gamma globulin in preventing poliomyelitis, the total use of this material and its equal distribution in vaccinated and non-vaccinated children, indicates that it did not interfere with proper evaluation of the effectiveness of vaccine.

7. Attention is called to Tables I and II of the appendix which present the distribution of cases by diagnostic classification and vaccination status in each of the 211 study areas. This should provide information of interest for each local area. The limited scope of the summary report makes it impossible to present further details of analysis for each study area separately.

TABLE 1A. DISTRIBUTION OF STUDY POPULATION BY PARTICIPATION STATUS AND VACCINATION STATUS—PLACEBO AREAS

Study Population	*Number*	*Percent*
Total in Grades 1, 2 and 3	749,236	100·0
Total requests to participate	455,474	60·8
Complete series of injections:		
Vaccine	200,745	26·8
Placebo	201,229	26·9
Incomplete injections:		
Vaccine	8,484	1·1
Placebo	8,577	1·1
Absent at first clinic or withdrew	36,439	4·9
Number not requesting participation	280,868	37·5
Participation status not recorded	12,894	1·7

TABLE 1B. DISTRIBUTION OF STUDY POPULATION BY PARTICIPATION STATUS AND VACCINATION STATUS—OBSERVED AREAS

Study Population	*Number*	*Percent of 2nd Grade*	*Percent of Total Population*
All Grades:			
Total	1,080,680		100·0
Requests	567,210		52·5
2nd Grade—Requests	245,895	69·2	22·8
Complete vaccinations	221,998	62·4	20·5
Incomplete vaccinations	9,904	2·8	0·9
Absent or withdrew	13,993	3·9	1·3
1st and 3rd Grades—Requests	321,315		29·7
All Grades—Participation not requested	332,870		30·8
All Grades—Participation not recorded	180,600		16·7

TABLE 2B. SUMMARY OF STUDY CASES BY DIAGNOSTIC CLASS AND VACCINATION STATUS (RATE PER 100,000)

Study Group	Study Population	All Reported Cases No.	All Reported Cases Rate	Poliomyelitis Cases Total No.	Total Rate	Paralytic No.	Paralytic Rate	Non-Paralytic No.	Non-Paralytic Rate	Not Polio No.	Not Polio Rate
All Areas—Total	1,829,916	1,013	55	863	47	685	37	178	10	150	8
Placebo Areas—Total	749,236	428	57	358	48	270	36	88	12	70	9
Vaccinated	200,745	82	41	57	28	33	16	24	12	25	12
Placebo	201,229	162	81	142	71	115	57	27	13	20	10
Not Inoculated *	338,778	182	54	157	46	121	36	36	11	25	7
Incomplete Vaccinations	8,484	2	24	2	24	1	12	1	12	—	—
Observed Areas—Total	1,080,680	585	54	505	47	415	38	90	8	80	7
Vaccinated	221,998	76	34	56	25	38	17	18	8	20	9
Controls †	725,173	439	61	391	54	330	46	61	8	48	6
2nd Grade not Inoculated	123,605	66	53	54	44	43	35	11	9	12	10
Incomplete Vaccinations	9,904	4	40	4	40	4	40	—	—	—	—

* Includes 8,577 children who received one or two injections of Placebo. † First and third grade total population.

TABLE 3A. TOTAL REPORTED POLIOMYELITIS CASES IN STUDY POPULATION DISTRIBUTED BY VEC DIAGNOSIS, DEGREE OF PARALYSIS AND VACCINATION STATUS—PLACEBO AREAS

VEC Diagnosis by Degree of Paralysis	Number of Cases Total No.	Total %	Vaccinated	Placebo	Not Inoculated	Rate per 100,000 Vaccinated	Placebo	S.L.	Not Inoculated
Total Cases *	426	100·0	82	162	182	41	81	·001	55
Paralytic Total	269	63·1	33	115	121	16	57	·001	37
Spinal	183	43·0	28	70	85	14	35	·001	26
Score 0	60		9	25	26	4	12	·01	8
1-19	44		9	12	23	4	6	N.S.	7
20-89	47		6	20	21	3	10	·01	6
90-199	23		2	9	12	1	4	·05	4
200+	9		2	4	3	1	2	N.S.	1
Unknown	—		—	—	—	—	—	—	—
Bulbar	14	3·3	3	5	6	1	2	N.S.	2
Bulbo-spinal	68	16·0	2	36	30	1	18	·001	9
Score 0	18		1	10	7	*	5	·01	2
1-19	20		—	13	7	—	6	·001	2
20-89	11		1	5	5	*	2	N.S.	2
90-199	14		—	6	8	—	3	·05	2
200+	5		—	2	3	—	1	N.S.	1
Unknown	—		—	—	—	—	—	—	—
Fatal Polio	4	0·9	—	4	—	—	2	N.S.	—
Non-Paralytic	87	20·4	24	27	36	12	13	N.S.	11
Doubtful Polio	29	6·8	13	8	8	6	4	N.S.	2
Not Polio	41	9·6	12	12	17	6	6	N.S.	5

* Excludes two cases who received partial injections. S.L.—Level of statistical significance.

TABLE 3B. TOTAL REPORTED POLIOMYELITIS CASES IN STUDY POPULATION DISTRIBUTED BY VEC DIAGNOSIS, DEGREE OF PARALYSIS AND VACCINATION STATUS—OBSERVED AREAS

VEC Diagnosis by Degree of Paralysis	Number of Cases Total No.	Total %	Vaccinated	Control Population	2nd Grade Not Inoculated	Rate per 100,000 Vaccinated	Control Population	S.L.	2nd Grade Not Inoculated
Total Cases *	581	100·0	76	439	66	34	61	·001	53
Paralytic—Total	411	70·7	38	330	43	17	46	·001	35
Spinal	247	42·5	20	199	28	9	27	·001	23
Score 0	79		12	63	4	5	9	N.S.	3
1-19	64		5	51	8	2	7	·01	6
20-89	67		2	53	12	1	7	·001	10
90-199	26		1	22	3	*	3	·05	2
200+	10		—	9	1	—	1	N.S.	1
Unknown	1		—	1	—	—	*	N.S.	—
Bulbar	25	4·3	3	20	2	1	3	N.S.	2
Bulbo-Spinal	128	22·0	15	100	13	7	14	·01	11
Score 0	21		5	14	2	2	2	N.S.	2
1-19	38		6	29	3	3	4	N.S.	2
20-89	33		4	26	3	2	4	N.S.	2
90-199	11		—	9	2	—	1	N.S.	2
200+	23		—	20	3	—	3	·01	2
Unknown	2		—	2	—	—	†	N.S.	—
Fatal Polio	11	1·9	—	11	—	—	2	N.S.	—
Non-Paralytic	90	15·5	18	61	11	8	8	N.S.	9
Doubtful Polio	44	7·6	12	26	6	5	4	N.S.	5
Not Polio	36	6·2	8	22	6	4	3	N.S.	5

* Excludes 4 cases who received partial injections. † Less than 1 per 100,000. S.L.—Level of statistical significance.

TABLE 5A. REPORTED POLIOMYELITIS CASES IN THE STUDY POPULATION—LABORATORY POSITIVE * PLACEBO AREAS

VEC Diagnosis	Number of Cases				Rate per 100,000			
	Total	Vaccinated	Placebo	Not Inoculated	Vaccinated	Placebo	S.L.	Not Inoculated
Total	198	18	86	94	9	43	·001	28
Non-Paralytic	32	6	11	15	3	5	N.S.	4
Paralytic—Spinal	106	8	45	53	4	22	·001	16
Zero score	21	—	9	12	—	4	·01	4
Scores 1+	85	8	36	41	4	18	·001	12
Paralytic—Bulbar	10	2	4	4	1	2	N.S.	1
Paralytic—Bulbo-Spinal	47	2	23	22	1	11	·001	7
Polio Fatalities	3	—	3	—	—	1	N.S.	—

* Includes 170 cases with poliomyelitis virus isolated.
23 no virus but 4-fold or greater rise in antibody in paired sera.
5 no virus from patient but poliomyelitis virus recovered from a family member

S.L.—Level of statistical significance.

TABLE 5B. REPORTED POLIOMYELITIS CASES IN THE STUDY POPULATION—LABORATORY POSITIVE * OBSERVED AREAS

VEC Diagnosis	Number of Cases				Rate per 100,000			
	Total	Vaccinated	Control	Not Inoculated	Vaccinated	Control	S.L.	Not Inoculated
Total	300	25	248	27	11	35	·001	22
Non-Paralytic	41	8	31	2	4	4	N.S.	2
Paralytic-Spinal	150	7	127	16	3	18	·001	13
Zero score	36	3	32	1	1	4	·05	1
Scores 1+	114	4	95	15	2	13	·001	12
Paralytic—Bulbar	17	1	15	1	†	2	N.S.	1
Paralytic—Bulbo-Spinal	88	9	71	8	4	10	·01	6
Polio Fatalities	4	—	4	—	—	1	N.S.	—

* Includes 253 cases with poliomyelitis virus isolated
42 no virus but 4-fold or greater rise in antibody in paired sera
5 no virus from patient but poliomyelitis virus recovered from a family member

† Less than 1 per 100,000.

S.L.—Level of statistical significance.

TABLE 6A. POLIOMYELITIS CASES IN THE STUDY POPULATION BY VIRUS DETECTION, SEROLOGY, TYPE OF VIRUS, AND BY VACCINATION STATUS PLACEBO AREAS

Virus Detection and Serology	Number of Cases			Rate per 100,000			
	Vaccinated	Control Population	Not Inoculated	Vaccinated	Control Population	S.L.	Not Inoculated
Virus Isolation Positive—Total	15	70	85	7	35	·001	24
Serology—Positive and probable	7	43	56	3	21	·001	16
Indefinite	6	13	23	3	6	NS	7
None	2	14	6	1	7	·01	2
Virus Type I—Positive—Total	13	39	49	6	19	·001	14
Serology—Positive and probable	6	27	32	3	13	·001	9
Indefinite	6	8	13	3	4	NS	4
None	1	4	4	*	2	NS	1
Virus Type II—Positive—Total	—	6	9	—	3	·05	3
Serology—Positive and probable	—	4	7	—	2	NS	2
Indefinite	—	—	1	—	—	—	*
None	—	2	1	—	1	NS	*
Virus Type III—Positive—Total	2	25	27	1	12	·001	8
Serology—Positive and probable	1	12	17	*	6	·01	5
Indefinite	—	5	9	—	2	·05	3
None	1	8	1	*	4	·05	*
Virus Isolation Negative—Total	29	31	32	14	15	NS	9
Serology—Positive and probable	8	18	17	4	9	·05	5
Type I	2	9	7	1	4	·05	2
Type II	2	5	4	1	2	NS	1
Type III	4	4	6	2	2	NS	2
Indefinite	16	8	7	8	4	NS	2
None	5	5	8	2	2	NS	2

* Less than 1 per 100,000 S.L.—Level of statistical significance.

TABLE 6B. POLIOMYELITIS CASES IN THE STUDY POPULATION BY VIRUS DETECTION, SEROLOGY, TYPE OF VIRUS, AND BY VACCINATION STATUS OBSERVED AREAS

Virus Detection and Serology	*Number of Cases*			*Rate per 100,000*			
	Vaccinated	*Control Population*	*2nd Grade not Inoculated*	*Vaccinated*	*Control Population*	S.L.	*2nd Grade not Inoculated*
Virus Isolation Positive—Total ..	20	210	22	9	29	·001	16
Serology—Positive and probable ..	10	144	15	5	20	·001	11
Indefinite	8	41	6	4	6	NS	4
None	2	25	1	1	3	·05	1
Virus Type I—Positive—Total	14	114	7	6	16	·001	5
Serology—Positive and probable ..	6	74	6	3	10	·001	4
Indefinite	6	26	—	3	4	NS	—
None	2	14	1	1	2	NS	1
Virus Type II—Positive—Total ..	2	34	2	1	5	·05	1
Serology—Positive and probable ..	2	26	2	1	4	·05	1
Indefinite	—	4	—	—	1	NS	—
None	—	4	—	—	1	NS	—
Virus Type III—Positive—Total ..	4	62	13	2	9	·001	10
Serology—Positive and probable ..	2	44	7	1	6	·001	5
Indefinite	2	11	6	1	2	NS	4
None	—	7	—	—	1	NS	—
Virus Isolation Negative—Total ..	39	117	23	18	16	NS	17
Serology—Positive and probable ..	8	67	9	4	9	·01	7
Type I	4	23	3	2	3	NS	2
Type II	3	16	2	1	2	NS	1
Type III	1	28	4	*	4	·01	3
Indefinite	29	41	12	13	6	NS	9
None	2	9	2	1	1	NS	1

* Less than 1 per 100,000. S.L.—Level of statistical significance.

TABLE 9A. VACCINATION STATUS OF PARALYTIC SPINAL AND BULBO-SPINAL STUDY CASES CLASSIFIED BY EXTENT OF PARALYSIS AS MEASURED BY BOTH THE 10-20 DAY AND 50-70 DAY MUSCLE EXAMINATIONS—PLACEBO AREAS

Vaccination Status	*Type and Extent of Muscular Involvement*													
	Based on 10-20 Day Muscle Examination							*Based on 50-70 Day Muscle Examination*						
	Total	*Total excluding Spinal Zero Score*	*Spinal Zero Score*	*Bulbo-spinal Zero Score*	*Combined Spinal and Bulbo-spinal with Score* 1–19	20+	*Unk.*	*Total*	*Total excluding Spinal Zero Score*	*Spinal Zero Score*	*Bulbo-spinal Zero Score*	*Combined Spinal and Bulbo-spinal with Score* 1–19	20+	*Unk.*
Total	251	193	58*	15	57	101	20	251	159	92	31	49	77	2
Vaccinated	30	22	8	1	8	11	2	30	12	18	1	5	6	—
Placebo	106	82	24	8	22	44	8	106	73	33	17	23	31	2
Not Inoculated	115	89	26	6	27	46	10	115	74	41	13	21	40	—
Ratio Placebo Cases Vaccine ..	3·5	3·7	3·0	8·0	2·7	4·0	4·0	3·5	6·1	1·8	17·0	4·6	5·2	—

* One additional case had spinal paralytic polio with zero score on both examinations but who received only 2 inoculations of vaccine.

TABLE 9B. VACCINATION STATUS OF PARALYTIC SPINAL AND BULBO-SPINAL STUDY CASES CLASSIFIED BY EXTENT OF PARALYSIS AS MEASURED BY BOTH THE 10-20 DAY AND 50-70 DAY MUSCLE EXAMINATIONS—OBSERVED AREAS

Vaccination Status	*Type and Extent of Muscular Involvement*													
	Based on 10-20 Day Muscle Examination							*Based on 50-70 Day Muscle Examination*						
	Total	*Total excluding Spinal Zero Score*	*Spinal Zero Score*	*Bulbo-spinal Zero Score*	*Combined Spinal and Bulbo-spinal with Score* 1–19	20+	*Unk.*	*Total*	*Total excluding Spinal Zero Score*	*Spinal Zero Score*	*Bulbo-spinal Zero Score*	*Combined Spinal and Bulbo-spinal with Score* 1–19	20+	*Unk.*
Total *	375	301	74	19	83	165	34	375	247	128	59	74	111	3
Vaccinated	35	23	12	5	10	6	2	35	17	18	8	6	3	—
Control	299	240	59	13	64	137	26	299	200	99	43	64	90	3
2nd Grade Not Inoculated ..	41	38	3	1	9	22	6	41	30	11	8	4	18	—
Vaccinated x factor †	115	76	39	16	33	20	7	115	56	59	26	20	10	—
Ratio Control Cases Vaccine ..	2·6	3·2	1·5	0·8	1·9	6·9	3·7	2·6	3·6	1·7	1·7	3·2	9·0	3·0

* 4 paralytic cases with zero score on 2nd examination were incompletely vaccinated and are not shown in this table.

† Since control population in 1st and 3rd grades was 3·28 times as large as the population of completely vaccinated children, the number of cases in vaccinates is multiplied by this factor in order to put them on a comparable population base.

ACADEMIC APPOINTMENTS AND RESIGNATIONS

The following appointments and resignations in the professorial staff of the South African medical schools have taken place in the past year:

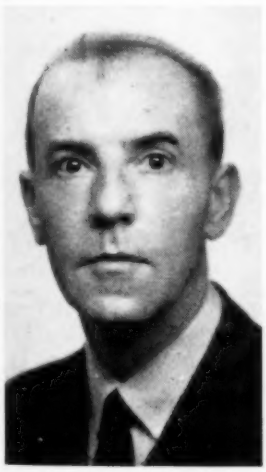
CAPE TOWN

In 1954, 2 new Chairs were created in the Faculty of Medicine at the University of Cape Town, *viz.* Child Health and Orthopaedic Surgery. As Professor of Child Health was appointed Dr. F. J. Ford, M.D. (Glasgow), F.R.F.P.S. (Glasgow), and as Professor of Orthopaedic Surgery, Dr. C. E. Lewer Allen, *G.M.*, M.D. (Rand), F.R.C.S. (Edin.), M.Ch. (ORTH.) (Liverpool).

At the same time the new title of Associate Professor was created, and 2 members of the Staff elevated to this status, *viz.* Dr. H. Zwarenstein, M.A., M.Sc. (Cape Town), Ph.D., D.Sc. (Manch.), F.R.S., S.Af., Senior Lecturer in Physiology, becomes Associate Professor of Physiology; and Mr. J. H. (Jannie) Louw, M.B., Ch.M. (Cape Town), Senior Lecturer in Surgery, becomes Associate Professor of Surgery.

The only resignation is that of Professor J. F. P. Erasmus, Head of the Department of Surgery since 1951, who has left Cape Town to become Head of the Neuro-Surgical Unit of the General Hospital, Pretoria.

Professor Findlay J. Ford is a Glaswegian by birth and training, and a paediatrician of 25 years' standing. Qualifying at Glasgow in 1926, he graduated M.D. (honours) in 1931 and became a fellow of the Royal Glasgow Faculty in the following year. In 1929 he was a Carnegie Research Scholar, and he spent part of 1930 at St. Louis, in the United States, on a Wander Travel Fellowship. From 1931 until his departure for South Africa he was associated with child health in Glasgow, and particularly at the Royal Hospital for Sick Children. From 1931 to 1948 he was Assistant to the Professor of Medical Paediatrics at Glasgow, and at various times had charge of the venereal-disease and chest clinics of the hospital; and he was paediatrician to the maternity units of the Glasgow Corporation. For the 5 years before his appointment in Cape Town Professor Ford was consulting paediatrician to the Scottish Western Regional Board.



Professor Ford

Professor Ford has published a number of papers in the paediatric field, *i.a. Calcium and Phosphorus Metabolism in Nephritis*; *Healing of Coeliac Rickets*; *Diabetic Coma*; *Care of Children's Teeth*; *Prognosis in Bronchiectasis in Childhood*; *Feeding of Premature Infants*.

In the non-professional field Professor Ford has wide interests, and in his young days he was something of a sportsman. He is married, with 2 daughters.

Professor Colin Ernest Lewer Allen, G.M., is a South African, born in Johannesburg in 1914 and educated there. After qualifying at the University of the Witwatersrand in 1939, and occupying house appointments at the Johannesburg General Hospital, Dr. Allen served in the South African Medical Corps and saw service in North Africa, Malta and Italy. In North Africa he performed front-line operations, and was awarded the George Medal for exceptional services in 1942.

After his release from the Army Dr. Allen joined Dr. F. P. Fouché, his former teacher, on the Rand for 2 years, and then proceeded to Britain as a Natal Nuffield Scholar for orthopaedic research—an award he had received in 1939, and which had been held pending his war service. He was elected a Fellow of the Edinburgh Royal College of Surgeons, and thereafter obtained his M.Ch. ORTH. at Liverpool University. Upon his return to South Africa he spent some time at King Edward VIII Hospital in Durban, and then went to Bloemfontein in 1950 to re-establish orthopaedic services in the Orange Free State. After 18 months' full-time work as Chief Orthopaedic Surgeon to the Province, he went into private specialist practice in Bloemfontein. During this time he conducted research into electromyography and obtained his M.D. degree at the Witwatersrand University in 1952 upon a thesis *Electromyography and Synchronized Photography in the Study of Human Movement*.

Professor Allen

Dr. Allen is one of three brothers who have distinguished themselves in South African medicine. A.L., the eldest, is a senior orthopaedic surgeon in Durban, while K.L., the younger brother, is the Johannesburg neuro-surgeon.

DURBAN

At the end of last year, the first appointments were made to the 3 clinical Chairs in the non-European Medical Faculty of the Natal University at Durban. Dr. E. B. Adams, B.Sc. (Univ. of S.A.), B.Sc. (Oxon), M.B., B.Ch. (Rand), M.R.C.P., became professor of Medicine, Dr. D. Crichton, M.B., Ch.B. (Cape Town), D.Phil (Oxon.), M.R.C.O.G., F.R.C.S., Professor of Gynaecology and Obstetrics, and Dr. A. E. Kark, B.Sc., M.B., Ch.B. (Rand), F.R.C.S., Professor of Surgery. At the end of April 1955, Dr. G. W. Gale, who has been full-time Dean of the Faculty of Medicine since 1952, is leaving to become Professor of Preventive Medicine in the University College of East Africa at Kampala, Uganda.

Professor Allan Eugene Kark was born in the Transvaal and educated at the Witwatersrand University, where he graduated B.Sc. in 1940 and in medicine in 1944. He was awarded 'blues' in golf and hockey, and captained the hockey team for 3 years, gaining Provincial honours during that time. Arriving in England at the beginning of 1945, he was appointed to an Emergency Medical Service Hospital at Reading. Thereafter until 1950 he held whole-time appointments in various London hospitals, covering general, orthopaedic, thoracic, rectal and genito-urinary surgery. In 1948 he obtained the F.R.C.S. Feeling the need for training in experimental work, he then went to the University of Chicago, where he worked as a research assistant in the Department of Surgery under Professor

Professor Kark

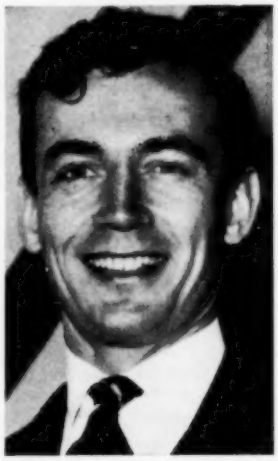
Dragstedt for 18 months. This work, concerned mainly with gastro-intestinal physiology, earned for him election to the Sigma XI Society, the National Honours Society for the Physical Sciences. In addition, he worked on the transplantation of kidneys and on radio-active isotopes, and undertook many clinical duties. During this period he paid prolonged visits to the Johns Hopkins University, to the University of Minnesota (Professor Wangenstern's clinic), to the Mayo Clinic, and to the Presbyterian Hospital and Columbia Medical Centre in New York. On returning to England in 1952 he was awarded a Leverhulme Scholarship for the carrying out of research work at the Buckston Browne Research Farm, and simultaneously held the post of registrar to Professor Ian Aird in the Department of Surgery at the Postgraduate Medical School in London. In 1953 he was elected a Wellcome Associate of the Royal Society of Medicine. Early in 1954 he was appointed a Surgeon (Tutorial) in the Department of Surgery at the Witwatersrand Medical School. With the aid of a C.S.I.R. grant he soon commenced experimental work in gastro-intestinal physiology and pathology. Since 1952 he has published several papers in this field. Professor Kark is married to an Arts graduate of the University of the Witwatersrand.

Professor Edward Barry Adams was born in Durban and received his pre-medical education at the Durban High School and the Pietermaritzburg section of what was then the Natal University College. He obtained the degree of B.Sc. (University of South Africa) in 1937 and 2 years later he was elected Rhodes Scholar for Natal. Prevented by the war from going at once to Oxford, he entered the Witwatersrand University, where he qualified in medicine in 1944. After service at the Addington Hospital, Durban, and in the South African Medical Corps, he proceeded to Oxford, where he worked for 2 years in the Nuffield Department of Clinical Medicine under Professor L. J. Witts. He obtained the M.R.C.P. in 1947 and the B.Sc. (Oxon.) in 1948, the latter for a thesis on aplastic anaemia. After a short period under Professor J. M. Smellie at the Children's Hospital, he returned to a post at Addington Hospital and thereafter spent 2 years in general practice at Pinetown. After 6 months as assistant tutorial physician in the Department of Medicine at the University of the Witwatersrand he returned to private practice, now as a specialist physician in Durban. He was appointed to the visiting staff of the King Edward VIII Hospital as assistant physician in 1950 and held this post in what is now the teaching hospital for the Durban Medical School, until his appointment to the Chair.

Professor Adams

Professor Adams has published several papers on haematology, being specially interested in the nutritional aspects of anaemia and in the megaloblastic anaemia of pregnancy and the puerperium. He is a married man, with 4 children, his wife being also a science graduate of the University of Natal.

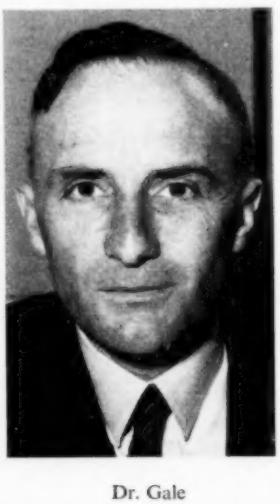
Professor E. Derk Crichton is the son of Emeritus Professor E. C. Crichton, who for 32 years held the corresponding Chair in the University of Cape Town. He was educated at the Diocesan College, Rondebosch, and the University of Cape Town, where he qualified in medicine in 1944 with first-class honours in surgery. A keen sportsman, he obtained cricket and hockey 'blues' at University, and Provincial colours in hockey. Until he went to the Radcliffe Infirmary, Oxford, as a Nuffield Fellow in 1949, he was trained by his father and Professor C. F. M. Saint whilst holding appointments at Groote Schuur Hospital, the Peninsula Maternity Hospital and in the University Department of Gynaecology and Obstetrics. At Oxford he worked for 3 years as Dominion Assistant—and later First Assistant—to Professor Chassar Moir. In 1950 he obtained the M.R.C.O.G. Thereafter he studied general surgery at several London hospitals and in 1953 obtained the F.R.C.S. He then returned to Oxford as Senior Registrar to Mr. J. A. Stallworthy in the Area Department of Obstetrics and Gynaecology, Radcliffe Infirmary. During his tenure of this appointment he was awarded a Leverhulme Scholarship, which has been renewed for the year 1955. Professor Crichton has carried out research and published papers on a variety of subjects within his specialty, and in 1952 he was awarded the degree of D.Phil. (Oxon.). He is married.



Professor Crichton

Dr. George William Gale was born in Durban of missionary stock in 1900, and educated at Durban High School and the old Natal University College at Pietermaritzburg, where he graduated M.A. in 1921. Thereafter he proceeded to Edinburgh University, where he qualified in medicine in 1927, and obtained the Diploma in Tropical Medicine and Hygiene in the following year.

Returning to South Africa, he spent the next decade of his life among natives, first as a practitioner and District Surgeon in Zululand, where he had been reared in the tradition of the medical missionaries, and then as a lecturer at Fort Hare University College in the Eastern Province.



Dr. Gale

After obtaining his Diploma in Public Health in 1935, Dr. Gale embarked on public health administration, first as assistant M.O.H. of Pietermaritzburg and then of Benoni. In 1938 he entered the Union Department of Public Health, and rose to be appointed Secretary for Health and Chief Medical Officer for the Union of South Africa in 1946. From this senior post he resigned in February 1952 to re-enter the field of his special interest, viz. the medical education of the Native.

Holding the first full-time medical appointment to the newly-opened Medical School, Dr. Gale has been closely connected with the planning of curricula and administration of the school. As its Dean he had a large hand in shaping its policy and guiding the future of its graduates-to-be; and as an international pioneer in the highly specialized field of Native medical education, his loss will leave a vital gap in the faculty in Durban.

PRETORIA

Dr. B. J. Meyer, M.B., Ch.B. (Pretoria), M.Sc. (Stell.), D.Sc. (Pretoria), is as Professor in die Fisiologie aangestel.

Dr. Bernard Johnson Meyer is in 1919 in die distrik Mosselbaai gebore, en was plaaslik en te Laingsburg op skool. Daarna skryf hy by die Universiteit van Stellenbosch in waar hy die B.Sc. (1940) en M.Sc. (Fisiologie, 1941) behaal het. Nadat hy vir anderhalf jaar as lektor in die Departement van Fisiologie aan die Universiteit van Stellenbosch gedui het, aanvaar hy 'n soortgelyke betrekking in Pretoria, waar hy in 1946 die D.Sc.-graad in Fisiologie met lof behaal het.

Prof. Meyer

Daarna volg hy die mediese kursus te Pretoria en gradueer as M.B., Ch.B. (Pretoria) in 1951. Na 'n jaar se diens as intern in die Algemene Hospitaal te Pretoria, keer Dr. Meyer na die Departement van Fisiologie terug, eers as waarnemende hoof, totdat hy verlede jaar tot professor en hoof van die Departement benoem is. Prof. Meyer is getroud.

WITWATERSRAND

No changes in professorial staff.

BOOKS RECEIVED : BOEKE ONTVANG

The Liver and Cancer. A New Cancer Theory. By Kasper Blond, M.D., F.I.C.S. Pp. 220 + xii. 27s. 6d. London: John Wright & Sons Ltd. 1955.

The Year Book of the Eye, Ear, Nose and Throat. (1954-1955 Year Book Series.) Edited by Derrick Vail, B.A., M.D., D.Oph. (Oxon.), F.A.C.S., F.R.C.S. (Hon.) and John R. Lindsay, M.D. Pp. 461, with 118 illustrations. $6.00. Chicago: Year Book Publishers, Inc. 1955.

Midwifery. A Textbook for Pupil Midwives. By Aleck Bourne, M.A., M.B., B.Ch. (Cantab.), F.R.C.S., F.R.C.O.G. and Mary Williams, S.R.N., S.C.M., M.T.D. Pp. 384 + viii, with 112 illustrations. 20s. London: J. & A. Churchill Ltd. 1955.

Essentials of Orthopaedics. By Philip Wiles, M.S. (Lond.), F.R.C.S. (Eng.), F.A.C.S. Second Edition. Pp. 538 + xv, with 393 illustrations. 55s. London: J. & A. Churchill Ltd. 1955.

A Textbook of Physiology. Edited by John F. Fulton, M.D. Seventeenth Edition. Pp. 1275+xlii with 600 illustrations. $13.50. Philadelphia & London: W. B. Saunders Company. 1955.

Christopher's Minor Surgery. Edited by Alton Ochsner, M.D., F.A.C.S., and Michael E. DeBakey, M.D., F.A.C.S. Seventh Edition. Pp. 547+xvi with 251 illustrations. $9.00. Philadelphia & London: W. B. Saunders Company. 1955.

Current Therapy 1955. *Latest Approved Methods of Treatment for the Practising Physician.* Edited by Howard F. Conn, M.D. Pp. 692+xxx. $11.00. Philadelphia & London: W. B. Saunders Company. 1955.

Poliomyelitis. By Robert Debré et al. Pp. 408 with illustrations. 40s. Monograph Series No. 26. Geneva: World Health Organization. 1955.

Abdominal Operations. By Rodney Maingot, F.R.C.S., (Eng.). Third Edition. Pp. 1580+xii with 72 illustrations. 170s. London: H. K. Lewis & Co. Ltd. 1955.

PASSING EVENTS : IN DIE VERBYGAAN

South African Medical Congress, Pretoria, 17-22 *October* 1955. Members who propose attending the Congress are reminded that it is urgently necessary to secure their hotel accommodation at once. Application should be made through the Railways Travel Bureau. A number of members who had been unable to get a booking on direct application to a hotel have been allotted accommodation at the same hotel on approaching the Railways Travel Bureau. Advice can be got from local stationmasters. It will greatly help the Congress organizers if members who have not done so will complete and return the intention card with which they have been supplied, or will otherwise intimate their intention to the Congress Secretariat, Room 28, Administrative Building, General Hospital, Pretoria.

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Union Department of Health Bulletin. Report for the 7 days ended 21 April 1955.

Plague, Smallpox: Nil.

Typhus Fever, Cape Province: One (1) Native case in the Idutywa Magisterial district. Diagnosis confirmed by laboratory examination.

Epidemic Diseases in Other Countries:

Plague: Nil.

Cholera in Chalna, Dacca (Pakistan).

Smallpox in Kabul (Afghanistan); Moulmein, Rangoon (Burma); Phnom-Penh (Cambodia); Ahmedabad, Bombay, Lucknow, Madras, Tellicherry (India); Muscat (Muscat and Oman); Dacca, Karachi, Lahore (Pakistan); Bangkok (Thailand); Nhatrang, Phanthiet, Saigon-Cholon, Tourane (Viêt-Nam); Mogadiscio (Somalia).

Typhus Fever: Kabul (Afghanistan); Cairo (Egypt).

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Scholarships for Medical Students. The Westdene Products Scholarships are awarded annually to a 4th-year, 5th-year and 6th-year medical student at Cape Town, Pretoria and Witwatersrand Universities, and are to the value of £100 each. The winners receive free tuition for one year, and in addition are able to purchase equipment to the value of the balance in cash. Successful candidates must show an outstanding record of academic merit and social responsibility. The winners of the Westdene Products Scholarships for 1955 have been announced as follows:

Witwatersrand University: Mr. John Blecher (4th year); Miss Alison Joan Buchanan (5th year); Mr. H. Geffen (6th year).

Pretoria University: Mr. W. Bouwer (4th year); Mr. L. Vorster (5th year); Mr. S. H. Reisner (6th year).

Cape Town University: Mr. M. S. Gotsman (4th year); Messrs. J. D. King and M. Jacobson, joint winners (5th year); Mr. L. H. Opie (6th year). Mr. Opie has now won the scholarship for 3 years in succession.

Natal University receives an annual grant towards the Physiology Department Research Fund until such time as the scholarship scheme can operate there.

Westdene Products (Pty.) Ltd., well-known importers and distributors of ethical medicines and surgical equipment and requisites, are hoping that their gesture towards the doctors of tomorrow will be adopted by other firms whose activities bring them into close contact with the medical profession.

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South African Medical Congress, Pretoria, 17-22 *October* 1955. General practitioners throughout the country are invited to contribute papers to the Sectional Meetings in the General Practitioners' Section. Those wishing to contribute should communicate with Dr. D. A. Fowler, Secretary of the General Practitioners' Section of Congress, Welgemoed Building, Van der Walt Street, Pretoria.

* * *

The 9th General Assembly of the World Medical Association is to be held in Vienna, Austria, on 20-26 September 1955. The President Elect is Dr. Karl Niederberger. Besides the business sessions of the General Assembly, the Austrian Medical Association is planning an outstanding scientific programme and a medical technical

exhibit of pharmaceutical products, instruments and medical books. Delegates will have the opportunity to fill their evenings with the music of the famous Viennese Opera, the Philharmonic Orchestra and the Viennese Boys' Choir.

* * *

Professor Goetz has left for the United States by the invitation of the U.S. Naval School of Aviation Medicine. He has received a grant from the Carnegie Corporation to visit various cardiovascular research centres. Professor Goetz has been invited by the President of the American College of Cardiology to deliver an address at their Convention during the latter half of May, and by various medical schools and hospitals to give lectures. He will also deliver a lecture in Lisbon on his way to the States at the invitation of the Portuguese Society of Cardiology.

BOOK REVIEWS : BOEKRESENSIES

TIDY'S SYNOPSIS OF MEDICINE

A Synopsis of Medicine. By Sir Henry Tidy, K.B.E., M.A., M.D., B.Ch., F.R.C.P. Tenth Edition. (Pp. 1253 + xix, 35s.) Bristol: John Wright & Sons Ltd. 1954.

Contents: Section (1). Specific Infectious Diseases. A. Bacterial Diseases. B. Diseases due to Mycoses. C. Protozoan Infections. D. Diseases Due to Metazoan Parasites. E. Diseases Due to Spirochaetes. F. Diseases Due to or Probably Due to Filterable Viruses. G. Diseases Due to Rickettsia Bodies. H. Infectious Diseases of Unknown or Doubtful Aetiology. Section (2). Diseases Due to Physical Agents. Section (3). The Intoxications. Section (4). Diseases of Metabolism. Section (5). Diseases of Deficiency. Section (6). Diseases of the Digestive System. Section (7). Diseases of the Liver, Gall-Bladder, Pancreas, and Peritoneum. Section (8). Diseases of the Circulatory System. Section (9). Diseases of the Respiratory System. Section (10). Diseases of the Kidney and Urinary Tract. Section (11). Diseases of the Blood and Spleen. Section (12). Diseases of the Endocrine Glands. Section (13). Diseases of the Muscles, Joints, and Bones. Section (14). Diseases of the Nervous System.

The 10th edition of this book retains its familiar form. It does not replace the standard text-books of medicine, where descriptions of disease are often better, but it provides a valuable addition because of the ready accessibility of facts.

Since the previous edition, the author has found a full revision necessary, but even so there are some surprising omissions. Isonicotinic acid hydrazide is not accorded a place in the treatment of tuberculosis, information on the use of anticoagulants for coronary thrombosis is inadequate, and cortisone is not included under the treatment of acquired haemolytic anaemia.

The field covered is very wide and rare diseases have not been excluded. A South African reader would, however, be surprised to find no mention of kwashiorkor, which is by no means uncommon in Africa as a whole.

Nevertheless, Tidy's *Synopsis of Medicine* remains a remarkable book, both for its wealth of information and for its very extensive index.

E.B.A.

CORRESPONDENCE : BRIEWERUBRIEK

ATHEROSCLEROSIS AND THE DIET

To the Editor: As an old retired practitioner who has lived through all the phases of coronary insufficiency from the days when it was an almost unknown entity to its present-day prevalence, and who has himself joined the fashionable ranks of the sufferers, I was intensely interested in Dr. Ancel Key's article which sets forth a most conclusive argument that a high-fat diet is the main factor in causation, relegating undue physical and mental stress to a decidedly lower plane.

This rather revolutionizes my former ideas on the subject, especially as I have never been a high fat consumer. Of course, one case cannot be an argument against Dr. Key's contention, but take our South African farming community; in common with other sections of the population, coronary disease takes a heavy toll today, and 50 years ago was as rare amongst them as amongst other communities, and yet, is it not a fact that in those old days they lived mainly on meat with a high percentage of fat, probably at least as high as is consumed by them today, possibly higher?

Posing as a very elementary student putting a question to his professor, I ask, 'Is it not possible that coronary spasm brought on by excessive mental or physical stress is more a factor in the production of thrombosis than the mere atherosclerosis?'

Still anxious to learn

17 April 1955

EPIDEMIC OF CEREBROSPINAL FEVER IN A CLOSED COMMUNITY

To the Editor: Herewith some comments on the article of Barry and King which appeared in the *Journal* of 16 April 1955.[1]

Although one is bound to agree that the general measures which had been taken to prevent the epidemic of cerebrospinal fever from spreading appeared to be successful, several points arise which might be criticized.

1. The authors stressed the need for increased cubic space per person in the dormitories. Indeed, they advised a most drastic step when viewed from the industrial angle, namely a reduction of immigration of the labour force.

Now, in the average modern mine compound, the normal spacing is quite within safe limits. As a matter of fact, Dudley and Brennan,[2] in their studies on Navy personnel at Chatham, showed that the most senior ratings, with the most spacious accommodation, had as high a carrier rate (60%) as the recruits with the worst sleeping quarters. It is thus extremely doubtful whether a further increase of cubic space would materially have affected the spread of the disease in this particular epidemic although, had it been possible without detriment to the industry, no harm would have been done.

2. As regards treatment, one wonders why they still use sulphapyridene, both prophylactically and therapeutically. Undoubtedly it is effective, but it also is one of the most toxic of sulphonamides. Surely the additional cost of sulphadiazine, which is as lethal to the meningococcus, could not have been prohibitive—especially as the very first case that they described had apparently been fatally poisoned by sulphapyridene.

3. In connection with the prophylactic use of sulphonamides, the authors might have made their work much less 'arduous and monotonous' by giving only one large dose of a suitable drug. This had proved to be most effective in a recent epidemic in the Sudan,[3] reducing the carrier rate for as long as 3 weeks. They could also have prepared a suspension of the drug and given the dose as a draught, which is more difficult for an uncooperative patient to hide in his mouth than tablets.

4. Would it not have been advisable to treat each new arrival with a prophylactic dose during the whole epidemic and not just for the week following the initial mass treatment? A scrutiny of the dates and figures given seems to bear out my point. Prophylaxis of recruits was continued from 28 August for a week, i.e. until 4 September. The epidemic again relapsed from 8 September onwards.

5. Finally, I see no objection to the intrathecal use of penicillin, but I question the high dose used. The upper limit is usually stated to be 30,000 units well diluted in saline, because of the danger of an aseptic meningitis which can do no good to a patient already labouring under the effects of a septic meningitis.

A. M. Coetzee

P.O. Box 1056
Johannesburg
21 April 1955

1. Barry, M. and King, A. (1955): S. Afr. Med. J., **29**, 357.
2. Dudley, S. F. and Brennan, J. R. (1934): J. Hyg., **34**, 525.
3. Macchiavella *et al.*: Quoted in Bull. Hyg., Lond. (1954): **29**, 797.